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MR. PRESIDENT, FELLOWS OF THE COLLEGE, AND GENTLEMEN,—My first duty is to thank you, which I do most sincerely, for intrusting to me the very honourable, though very arduous, duty of delivering the Harveian oration this year. Such an honour must bring to the mind of any man—it certainly did to mine—first a feeling of pleasure and of pride, which I hope may be pardoned, and next a feeling of much anxiety and misgiving as to one's qualification for the task. For it is indeed a serious thought that ever since 1656, with but few intervals, this oration has been delivered by a long line of distinguished physicians who have vied with one another in holding up to admiration the life and work of the illustrious man whom we commemorate to-day. Certainly, had it been possible I should have wished to bring before you fresh facts about Harvey or to present some fresh aspect of his genius or his character. But that I cannot hope to do. For have we not already excellent lives of Harvey, two of them, at least, recently written, the work of skilful and sympathetic historians like Dr. Norman Moore and Mr. D'Arcy Power? And have not Harveian orators within our recollection elucidated fully the leading points and bearings of Harvey's work? Dr. George Johnson vindicated the originality of his great discovery; Sir Edward Sieveking brought before the College his rediscovered Lumleian lecture notes; Sir William Church has traced, from Harvey as its source, the rise of physiology in England; Dr. J. F. Payne has shown us the influence of Galen upon Harvey; Dr. Norman Moore and Professor William Osler have drawn for us brilliant word pictures of the man, his times, his friends, and his lectures at this College. Alas, that I cannot compete with them! that I have no fresh offering to lay on Harvey's shrine! and that I can only bow my head, as do we all, in memory of this great and good man, of his noble character, his transcendent genius, and his immortal discoveries.

But there are certain definite wishes expressed by Harvey about this oration. One is that there be "an exhortation to the Fellows and Members to search and study out the secrets of Nature by way of experiment." Now as to experiment in the limited sense of physiological experiment, may we not say that this wish has attained its consummation? No reasonable medical man, certainly no Fellow or Member of our College, would deny the greatness of the debt which medicine owes to experimental science. How far would the science and art of medicine have progressed without a knowledge of the circulation?—a knowledge which was obtained, as Harvey himself tells us, by experiment, by the vivisection of many animals. The interdependence of modern medicine and experimental science was shown by your orator of last year, Dr. Frederick Taylor, so fully that I need not tread that ground again. It is true that we cannot all be experimentalists either in physiology or in other branches of science. But there is no need to place that narrow limit on Harvey's words. Certainly he speaks to each and all of us; but I think he means to emphasise here, as he so often does elsewhere, the importance of independent individual research, whether by experiment or observation, as opposed to a blind or lazy submission to current theory and authority. Knowledge of other men's opinions he certainly did not underrate, for he was himself a most learned man; but he refused to let learning trammel investigation, and would not look at Nature through the distorting medium of a theory. And this frame of mind is as valuable now as then, and necessary, above all things, in the study of medicine; for of many medical theories one is tempted to say—

> "Our little systems have their day;
> They have their day and cease to be."

Another wish of Harvey is that there should be "a commemoration of all the benefactors of the College by name, with an exhortation to others to imitate these benefactors." As a benefactor who has not yet been mentioned in a Harveian oration, I ask you to honour to-day Dr. Charles Coates, a senior Fellow of our College, who has given a sum of £1000 towards providing some hospitable entertainment for our Members and Licentiates. This idea, suggested as I believe, Sir, by yourself, took a tangible form in the successful conversazione of last summer. Such hospitality is entirely consonant with Harvey's spirit, and that entertainment of the Members and Licentiates was the proper complement of the "general feast" which he instituted for the Fellows to-day.

Now the names of those benefactors who have founded lectures, scholarships, and prizes are recorded with all due particulars in the Annual List of the College, and are so well known to you that I need not recapitulate them. But besides these, and others than these, who have given money, lands, books, or other good things to the College, there are those who have devoted their time and talents to its service, or who have shed a lustre upon it by their learning, their discoveries, or their distinguished career. They also, in the truest sense, are benefactors of the College. I look in that invaluable book, Dr. Munk's "Roll of the College of Physicians," and I see first a long list of Presidents under whose care and devotion the College has thriven, reaching back from yourself, Sir, to our revered founder Linacre; next, men famous in science, physicists like Gilbert, Wollaston, Thomas Young, Arnott; chemists such as Prout and Alexander Marcet; naturalists and botanists such as Fothergill, William Pitcairn, Sir Hans Sloane; anatomists and physiologists, at whose head stands Harvey himself, Richard Lower, and such great names as those of Glisson, Havers, William Hunter, Wharton, Willis. There have been famous authors and men of letters—Sir Thomas Browne, the anniversary of whose birth and death is to day, Akenside, Arbuthnot, Garth, and (strange constrast) Stukeley the antiquarian, and many others well known for scholarship, learning, and literary talent. There are the great masters and discoverers in medicine, such as Sydenham, Matthew Baillie, Bright, Addison. And some have been also known for their simplicity of character, their high ideals, and their life of transparent goodness. Such, I think, must have been David Pitcairn, of whom Dr. Munk says that he was simple, gentle, dignified, and very kind of heart; and such William Babington, of whom the same authority says: "History does not supply us with a physician more loved or more respected"; and such an one was Peter Mere Latham—scholar, physician, inspiring teacher, eloquent writer, high-toned gentleman, devout Christian. I know that one of our Fellows, whose untimely death we all deplore, took Dr. Latham, though he never saw him, for his model and example.

These are but a few of the many noble figures which fill the great pageant of our past. But need I, Sir, say more? for I am sure that Fellows of the College know so well the lives and works of our illustrious predecessors that for an "exhortation to imitate them" it will suffice to have recalled their names.

Many of my predecessors in this office have varied the theme of their Harveian oration by introducing into it some subject of general medical interest, and I ask your leave, Mr. President, to follow their example. I desire to direct attention to the great subject of heredity, and in particular heredity in relation to disease. A distinguished German physician has said "There are no inherited diseases." We need not argue that, for we should all admit that heredity has much to do with the production of disease. Now of that mysterious thing inheritance I need only say that it lies at the very root of our being both as individuals and as a race, as indeed is recognised in the proverbs and the religions of all nations. "Fortes creantur fortibus," said Horace. "The fathers have eaten sour grapes and the children's teeth are set on edge." The Chinese worship their ancestors, and there are words familiar to ourselves concerning a visitation "unto the third and fourth generation."

This year, too (1908), is the fiftieth anniversary of the paper

written by Charles Darwin and Alfred Wallace "On the Tendency of Species to Form Varieties, and on the Perpetuation of Varieties and Species by Natural Means of Selection," which constituted the inception of that theory of evolution which has since dominated scientific thought and which has for its basis the facts of inheritance. But granting the importance of the subject, what has it to do with Harvey? Not much perhaps, if we limit our thoughts to his great and enduring work on the circulation of the blood. But we know that other problems in physiology occupied his mind. It is true that it was late in Harvey's life, when his friend Dr. Ent obtained from him for publication his book "De Generatione Animalium," and almost against his will, for he knew that it was incomplete. Yet it seems that he had been patiently collecting facts for it many years before and one whole section of it, on the generation of insects, had been destroyed by his political enemies as ruthlessly as they might have wrecked a cathedral. One is tempted looking on his two great works to contrast them by saying that the "De Motu Cordis et Sanguinis" arose complete, conclusive, victorious, like Pallas from the head of Jove, while in the "De Generatione" we witness his painful and laborious searchings after truth. But that would be a superficial contrast, for we know that the truth concerning the circulation was incubating in his mind for some ten years before it found final expression, and we have been taught by the Harveian orator of two years ago that the growth of truth is slow. Granted that in the "De Generatione" he did not attain to the full knowledge which he desired (that indeed was impossible with the meagre means of observation at his command), yet we cannot but admire his method in the collection and presentation of facts within his reach. I imagine that no better account of the phenomena of development could have been given at that date than Harvey gives in his chapters "On the Inspection of the Egg" and "Of the Order of the Parts in Generation as it appears from Observation." It is only when facts fail him that we fail to follow his conclusions. To give an example. "It is certain," he says, "that no semen reaches the uterus"—he had no microscope wherewith to identify the spermatozoa—"therefore the woman becomes fecundated without the coöperation of any corporeal agent, in the same way as iron touched by the magnet is endowed with its powers and can attract other iron to itself." A bold analogy indeed, drawn from a branch of science which then was very young; but it shows, like many other passages from his works, that Harvey, with all his zeal and reverence for facts, had his gaze fixed on the great mysteries of life, on the marvel of conception, on the efficient cause (to use his own phrase) of reproduction, and on heredity in its widest sense. For does he not himself say, "In truth there is no proposition more magnificent or more useful to ascertain than this: How are all things formed by an univocal agent? How does like ever generate the like? And this not only in productions of art (for so house builds house, face designs face, and image forms image), but also in things relating to the mind; for mind begets mind, opinion is the source of opinion. Democritus with his atoms, and Eudoxus with his chief good, which he placed in pleasure, impregnated Epicurus; the four elements of Empedocles, Aristotle; the doctrine of the ancient Thebans, Pythagoras and Plato; geometry, Euclid. By this same law the son is born like his parents, and virtues which ennoble and vices which degrade a race are sometimes passed on to descendants through a long series of years. Some diseases propagate their kind, as lepra, gout, syphilis, and others. But why do I speak of disease when the moles, warts, and cicatrices of the progenitor are sometimes repeated in the descendant after many generations? Every fourth birth, says Pliny, the mark of the origin of the Dacian family is repeated on the arm. Why may not the thoughts, opinions, and manners now prevalent return again, after an intermediate period of neglect? For the divine mind of the eternal Creator, which is impressed on all things, creates the image of itself in human conceptions." I quote these words of the great master in the hope of persuading you that some remarks on heredity may not, after all, be alien to a Harveian oration; and if I invite your attention to that subject for the brief time that remains, it is not, believe me, with any vainglorious expectation that I shall add to your knowledge either of facts or of theory, but only that I may perchance—again to quote the words of Harvey—"stir up the intellects of the studious to search more deeply into so obscure a subject."

It would be interesting, doubtless, to consider what answers modern authors make to the question over which Harvey puzzled—namely, how comes it that the embryo is laid down, with definite parts, in a definite order, and so that it eventually resembles its parent? That would mean a consideration of such theories as the pangenesis of Charles Darwin, the determinants of Weismann, and the "mneme" or unconscious memory of Richard Semon, a doctrine set forth, you will remember, by Francis Darwin in his presidential address to the British Association this year. But these things I am not competent to expound, neither would time permit me to try. I will therefore only raise such points as seem to have direct practical bearings for us.

And first comes the old question, "Are acquired characters transmissible?" Have those external forces and events which help to fashion our own life and being any similar effect, through ourselves, upon our unborn children? I think than the plain unlearned man would certainly say "Yes," and so did the learned till a short time ago. Lamarck's views of natural history and the theory of natural selection as first propounded by Darwin assumed the possibility of such transmission, and numerous illustrations of it as regards man and his diseases were collected, perhaps in an uncritical fashion, by Prosper Lucas and others. But it is incompatible with Weismann's theory of heredity which is now so widely held. The central idea of that theory is the "continuity of the germ plasm." By germ plasm is meant the formative tissue out of which, or under the guidance of which, each individual is fashioned. It matters little to the theory whether this germinal plasm is identified with the germinal cells (as formerly) or with the much minuter particles of their nuclei known as "chromosomes." The germ plasm is continuous—that is to say, it is not manufactured afresh within the individuals of each generation for the purpose of procreating the next, but it is handed on from generation to generation, only changing in this sense, that as each successive individual is made, a portion of the germ plasm is set aside within him whereby he will carry on the work of generation when his elders have perished. So that we are not links in a chain of life but rather flowers or leaves which spring from a common stem, the germ plasm. And in the same way I am not, strictly speaking, my son's father, but his elder brother (to be accurate I should say his half-brother), nor am I my father's son but his younger brother; the real father of us all is the family germ plasm, and my duty to that father is to accommodate him in the house he has built, my body, till he has built himself a new one, my son's body. The reason for the resemblance of successive generations to each other is now obvious: it is because they are all brothers, made out of the same stuff on the designs of the same architect. It is obvious, too, that the effects of external conditions on one generation will not be reproduced in another unless the same external conditions happen to act again. If a caterpillar has gnawed a hole in a leaf upon a tree the other leaves will not have holes in them unless the caterpillar have gnawed them too.

Then do the ills acquired by the parents have no effect on the well-being of their children? Few people, surely, would maintain that. For the germinal plasm is lodged, at any rate, in the parent's body; if he dies, it dies; and if he suffers from any deeply reaching disorder of nutrition the probability is that it must suffer too. And such nutritional possibilities, I need hardly say, are numerous. We need not suppose, then, that exhausting diseases which may affect the whole organism—such as alcoholism, diabetes, syphilis, or phthisis—are without effect upon the health of our children. And is it not also possible that similar far-reaching effects may be produced by other influences not strictly nutritional, say, for example, some nervous shock? May not a violent commotion of the branches of the tree affect its stem?

Still, it is one question whether disease acquired by a parent can produce ill effects on his children of a general kind (a thesis which, to my mind, can hardly be denied); it is another question whether, when a parent has acquired a particular disease, disease of the same or of a similar kind is likely to occur in his children. Those who deny this absolutely say, first, that it never happens. Observation must be the test of that. Secondly, that it cannot happen,

because it is contrary to theory and because we know of no mechanism whereby the body cells could communicate their modifications to the germ plasm. But ought the door to be slammed in the face of further inquiry? Is there not still here a legitimate field for observation?

At first sight there appears to be a glaring instance of such transmission—that is, syphilis—but this is dealt with as follows. Either the child imbibes the virus in utero by the placenta from an infected mother—this is evidently an antenatal infection rather than inheritance—or else the virus is introduced by the sperm cells of the father at the very moment of conception; this, again, whatever it may appear to us, is to the biologist not inheritance but an infection of still earlier date than the last. Similarly, it is denied that there can be a true inheritance of any microbic disease whatever. Suppose we assent to that, yet susceptibility to such diseases, in either a plus or minus direction—that is, proclivity to them, or power of resistance to them—may be inherited. And may not such susceptibility be first acquired and then transmitted? When measles appeared in Fiji for the first time its ravages were far more severe there than among ourselves with whom it has long been endemic. The simplest explanation of this (I know there are others) seems to me to be that we have acquired and then perpetuated some degree of resistance to the disease. Suppose that a man of healthy stock acquires phthisis, will his children be more prone to phthisis or no? Our treasurer in his "Treatise on Gout" says "the fact of acquired gout must be accepted." Suppose, then, a man of healthy stock acquires gout, are his children likely to be gouty? Suppose, again, that a man in consequence of a blow on the head becomes, like Brown-Séquard's guinea-pigs, epileptic, is there any risk that his children will be epileptic? Suppose that a man has syphilis in early life and later becomes a general paralytic, ought we to feel more anxious about the mental future of children begotten during his last illness than about that of his earlier ones?

I confess for myself that I do not know the answer to these questions, but I think that there are those among my audience whose experience could supply it and who are well qualified to "search and study out this secret of nature," whether acquired diseases are in any degree transmissible to our children or no?

I must now refer, though in the briefest possible way, to the work of Mr. Francis Galton, Professor Karl Pearson, and those others who have enriched the study of heredity by the method of statistics, if only to express my admiration for their arduous labours. It may be that statistics do not appeal so forcibly as they ought to do to the medical man, because he has principally to deal with individuals. Neither have statistical methods, so far as I know, been largely applied as yet to the subject of heredity in disease. But nevertheless the general principles evolved from them must have their application for us. Thus the "law of ancestral inheritance" reminds us that we are hybrids—mongrels in an extreme degree—or to put it more pleasantly, that our inheritance is very composite, a patchwork or mosaic pieced together from the characters first of our two parents, next of our four grandparents, and then in a diminishing ratio from an almost infinite number of ancestors, who probably included all sorts and conditions of men. Secondly, the "law of filial regression or correlation" declares that although children resemble their parents in the main, nevertheless unless constant attention be given to breeding, there is a tendency among the descendants of any individual parent to smooth out any striking peculiarities he may have possessed, and to bring them, whether it be upwards or downwards, to the average level of his multitudinous ancestry. So that the average man cannot hope to escape mediocrity, unless, as the saying goes, he has been very careful in the choice of his ancestors.

But the mention of the word hybrid naturally leads our thoughts to the discoveries of Mendel. Now were romance permissible in a Harveian oration it might well be evoked by the story of Gregor Johann Mendel, peasant-born, priest by vocation, yet a student of science, and a man of rare scientific insight, whose life was spent as priest and as abbot at the monastery of Brünn, and whose leisure was spent in the study of hybridisation of plants. He died in 1884, unknown to scientific fame, and his work, buried in the proceedings of a local scientific society, was like to have died with him; but it has been disinterred in this century by those who recognise in it the hand of genius and compare it in importance to the work of a Newton or a Dalton.

It is to Professor Bateson that we in this country are chiefly indebted for the exposition and elaboration of Mendel's work. The principles of Mendelism, as it is now called, are admirably summarised in a little book by Mr. R. C. Punnett; I shall borrow from him and not tax your patience long.

Mendel showed that in the study of inheritance it was possible to select certain simple characters whose nature was more or less opposed, such as tallness and dwarfism, roughness and smoothness, colour differences and the like. These could be studied apart from other characters, and were found by him to behave in a definite way, as follows. Suppose a plant which is of a pure tall breed is fertilised from a similar breed, the resultant offspring is of course the same—viz., pure tall; and from a pure dwarf breed treated in the same way the results are pure dwarfs. If a pure tall, however, be fertilised from a pure dwarf, the result must be a generation of hybrids; and one might expect them to be of medium height. But this is not the case, they are all tall. It looks as if the tallness had swamped the dwarfism, so that we may call the tallness a dominant character and the dwarfism a recessive character. But though these hybrids are tall in appearance, the dwarf element has not wholly disappeared, it remains in respect of their powers of propagation. For if these tall hybrids be interbred together the dwarfism comes out again in their progeny, so that in the third generation there are some tall, some dwarf. Moreover, there is in this third generation a definite proportion between the two varieties—namely, three tall to one dwarf; or, to speak more accurately (as can be proved by further interbreeding), one pure tall, two hybrids which appear tall, and one pure dwarf. The theoretical interpretation of these facts is that the pairs of characters which behave in this way (allelo-morphic pairs as they are termed) do not blend in the germ cells or gametes, but that each gamete carries either one of the characters or the other; and further, that the difference between a pure breed and a half-breed is this, that in a pure breed all the gametes carry one of the characters to the complete exclusion of the other, while in a half-breed half the gametes carry one character and half carry the other.

Mendel made his classical experiments on plants; they have been repeated by other observers not only with plants but with many forms of animals—e.g., insects, snails, poultry, pigeons, rats, mice, and rabbits; and many characters have been studied from this point of view. One result may be quoted as specially interesting to physicians. It is that when a certain species of wheat which is very susceptible to the ravages of a fungus which causes "rust" is crossed with another species which is not susceptible, the immunity to rust which reappears in the resulting strains of wheat distributes itself in the Mendelian proportion. This suggests the possibility that something of the same sort may hold with respect to our own susceptibilities to disease, and raises the very questions which interest us most. For we want to know whether Mendelian laws are applicable to man, to his normal characteristics, and to conditions of disease, and how far they are applicable.

This question cannot be answered completely. Observations have been made (many of them I imagine under the inspiration of Professor Bateson) on various points, such as the colour of the iris by Mr. Hurst; hereditary diseases of the eye, such as congenital cataract, night blindness, and colour blindness by Mr. Nettleship; hæmophilia; albinism; alkaptonuria by Dr. Garrod; hereditary deformities of the limbs by Farabee and Drinkwater. Dr. Gossage has rightly drawn attention to the importance of hereditary diseases of the skin, which are easily observed, and has himself investigated the condition known as tylosis of the hands and feet. It would appear that in some cases the Mendelian proportion works out; in enough, perhaps, to encourage further research, but I do not know whether more can be definitely said. The difficulties are sufficiently obvious. The only method of inquiry at present open seems to be the patient collection of pedigrees; experiment is possible with plants and animals but not with mankind. We cannot pick parents to breed from. The pedigrees, too, must be complete, not only as to the number of diseased people but also as to the number of the normals, since the proportion between the two is a vital point. A pedigree should embrace at

least three generations; therefore, the facts can rarely be the result of the physician's direct observation. Again, the numbers in human families are at best so small that a single vitiating instance may make a large error in the proportion of normals to abnormals, and it is difficult to know what to do with stillbirths, children who die young, or others of whose condition nothing may be known. This numerical difficulty may be partially met by adding up the totals of many families, but that is certainly a method to be employed with caution. And this, too, has to be remembered: that certain modifications have been introduced into the original Mendelian laws which are, no doubt, necessary and correct, but which tend to mask their simplicity of application. Such, for instance, is the interaction of two sets of characters, whereby the dominance of one member of an allelo-morphic pair over the other is rendered conditional on the presence of a third character. Thus it has been supposed, on the analogy of other facts, that hæmophilia is a character which becomes dominant or recessive according as the sex of the person is male or female and that this accounts for the rarity of female bleeders. Such modifications and complications may make the interpretation of a pedigree as difficult as its construction; and it may be necessary to refer it for its interpretation to someone who knows the business well.

In some diseases where family pedigrees are not easily obtainable all that we can say is that the facts agree with some side deduction from Mendel's theory. It appears that first cousin marriages form one of the causes of alkaptonuria, and it is pointed out that this is just what would happen if alkaptonuria were a rare recessive character in the Mendelian sense. The character being recessive would not appear on the surface until two similar hybrids—hybrids, that is, possessing the character—intermarried. And since the character is rare, two such hybrids are not likely to meet unless they are of the same family. And that is one thing that may be said, on Mendelian principles, about consanguineous marriages in general. They are a means of bringing to light hidden (recessive) characters. Such characters may be good or bad, we cannot tell beforehand. So that the State of Wyoming, which Lord Rosebery tells us has forbidden first cousin marriages, may have prevented evil or may have stifled good.

The study of heredity in disease is likely to be particularly interesting in the sphere of the nervous system. For in the first place heredity is here an agent of great power: it ranks with injuries, infections, and intoxications as one of the principal causes of chronic nervous degeneration. Again, in proportion as our civilisation becomes more and more elaborate, so we depend for progress more and more upon our nervous system, upon its flexibility and capacity for adjusting itself to the complication of our surroundings. This suggests the possibility that the ways in which heredity moulds this plastic material may be varied; that just as a young and growing community has to feel its way towards the establishment of its laws or its political system, so here perhaps those sequences which we call laws of heredity may not yet have attained a rigid uniformity. However this may be, there are at least two ways in which heredity manifests itself in diseases of the nervous system. The first relates to that common group of maladies known as neuroses. This group includes such affections as epilepsy, insanity, hysteria, neurasthenia, tics, alcoholism, &c., which are characterised, so far as we know them at present, by perverted nervous action rather than by coarse structural disease. They are related together in this way: that they seem to be the expressions, varied and interchangeable *inter se*, of some one underlying nervous defect; we may perhaps call them the ill-timed or inappropriate response of a nervous system which adapts itself badly to its surroundings. This deeply seated nervous defect, whatever its precise nature may be, is hereditary in a high degree, so that the "neuropathic family" is now notorious in medicine. One member of it may be epileptic, another insane, another eccentric, and so forth, but the faulty nervous constitution is the same in all. So much we know, but there is much more that we should like to know. How, asks Dr. G. H. Savage (in his presidential address to the Neurological Society) does this instability of nervous system originate? May it have begun through faulty nutrition of some ancestor so profound that his germinal tissues suffered with the rest of his body? That might suggest a hope that in time it might be rectified by reversing the process. Or may it be that his germinal tissues were old and effete when he undertook the process of procreation? Or is it, after all, some deeply ingrained fault originating we know not how and curable only by extinction of the stock or by repeated crossings with others that are more stable? We cannot answer certainly. Nor can we always tell what determines the special form of neurosis in the different individuals, why some should have epilepsy, some insanity, and so forth; nor why, as sometimes happens, some one of these morbid manifestations should repeat itself and not alternate with others. Melancholia, Dr. Savage tells us, is particularly apt to recur in several members of a family, and Dr. W. Aldren Turner says the same thing, I believe, of epilepsy. Nor yet do we know why some members of a neuropathic family should appear perfectly normal and some, perhaps, even better than their fellow-men. Here we think of the old saying that genius is allied to insanity. Mendelian writers some times tell us that we should learn the lesson of the blue Andalusian fowl. That farmyard sermon teaches us, *inter alia*, that from crossing two pure breeds which are considered undesirable a mongrel may result of a desirable character. May this happen with neurotic stocks? Can two such families atone for their existence by combining to produce a genius? One would hardly care to advise the experiment, and luckily our advice as to pairing is seldom asked and still less often acted on. The science of eugenics is still in its infancy; let us hope that when it becomes an active force physicians will have acquired such knowledge as will enable them to take their proper share in controlling it. Lastly, there is the important inquiry, what relation have these nervous manifestations, and the diathesis in which they have their root, to other diseases of more tangible nature, to gout, rheumatism, tuberculosis, the febrile state, &c. That there are such relations, and some rather close ones, this we know, but little more.

The second way in which heredity manifests itself as regards nervous disease is different. In this form a certain disease, definite in type, whose identity, as a rule, is easily recognised, appears in several members of a family, it may be in successive generations, it may be only in one generation. This class constitutes the group known as family diseases of the nervous system, which was discussed before the College last summer in a most interesting lecture by Professor Raymond. Such family disease is by no means limited to the nervous system, but in that sphere numerous and remarkable examples of it are to be found. Friedreich's ataxia is one of the best known examples. In this class of disease the precision with which the features of the particular complaint reproduce themselves is generally remarkable, and contrasts strongly with the shifting character of the neuroses which we have just considered. There are, I know, exceptions to this rule, which have been much insisted upon lately, either where the disease is incompletely developed in some individuals, or where different types may appear in different members of the same family; but still I think that, generally speaking, the reproduction is fairly accurate, so that the particular disease can be as easily recognised as can tabes dorsalis, disseminated sclerosis, or other non-family nervous disease. A general neuropathic taint need not necessarily exist in the family, though of course it may. The majority and the best known of these diseases present the clinical picture of a slowly progressive incurable paralysis, which may correspond anatomically to an exceedingly definite degeneration of certain nerve tracts. Thus Friedreich's disease affords us an exquisite example of combined system sclerosis beginning in the posterior columns, then affecting the pyramidal tracts, and involving in advanced cases the afferent tracts to the cerebellum as well. Hereditary spastic paraplegia has been shown by Strümpell to depend on a degeneration of the pyramidal tracts. Yet the patients are not born with these lesions, so that we cannot exactly call them malformations; they are born with a hereditary weakness of these nervous tracts, which break down under the stress of living. The age at which symptoms begin differs largely in the different diseases; the onset may be in early life, in early or late adolescence (instances of all these dates can be given in Friedreich's disease); in middle life or even later, as in Huntington's chorea or the spastic paraplegia just quoted from Strümpell. It is strange to think that a man can develop at that age a

disease which must have existed potentially all his life. The date of onset may be influenced, too, within limits, by family proclivity or circumstances; in a series of brothers and sisters it often repeats itself.

Now, though the presence of a definite organic lesion and a progressive downward course are the rule for these complaints, this is not so for all of them. Contrast the hereditary chorea of Huntington, which is fatal and in which lesions of the cortex have been found by Michell Clarke and others, with family tremor, which is not necessarily progressive and for which we know no anatomical basis. Contrast, too, in this respect, muscular dystrophy which may slowly reduce a patient to the condition of a living skeleton with the perverted condition of muscular contraction known as myotonia congenita or Thomsen's disease.

Notice, too, that most remarkable family disease called "periodic paralysis," in which the patient experiences recurrent attacks of paralysis, so complete that even the electrical reactions of the muscles disappear; yet the attack passes off and he is well in the intervals. This affection has been traced back through as many as five generations. There can hardly be a gross lesion; and the suggestion has been made that some poison is at work, perhaps produced by the patient's own faulty metabolism; an "inborn error of metabolism," like those with which our Croonian lecturer, Dr. A. E. Garrod, has made us acquainted.

In these family nervous diseases the curious phenomenon of sex limitation is sometimes seen, and generally in this sort, that females are themselves not affected, yet they transmit the disease. This was pointed out, I think, by Sir William Gowers, in pseudo-hypertrophic paralysis, and in the remarkable pedigree of peroneal atrophy published by Dr. W. P. Herringham in 1889 it is a striking fact. Yet in peroneal atrophy it is certainly not the rule; and in sundry other family diseases I do not think it occurs at all.

Lastly, as to the essential nature of these diseases. They have been called family diseases, if I mistake not, in order to avoid the distinct assertion that they are hereditary—i.e., transmitted from ancestors. But why should we not assert this? It is true that such disease may break out in a family of brothers and sisters without obvious ancestral taint; but in all these instances there is an absence of other sufficient cause, and they can be supplemented by quoting other families in which we know the disease to have been handed down. How, too, when cousins are affected? The common cause must then lie further back than the parents or the upbringing of one particular family. Indeed, if we refuse to call these complaints hereditary because we cannot always trace the heredity we should on the same ground refuse to call them family affections. For we often meet with isolated instances, sporadic cases where only one member of a family is affected. This is surprisingly frequent in Friedreich's disease. Still, it is a strange thing to witness, when a disease, hitherto unknown in a family, arises without apparent cause, and involves in a progressive paralysis one after another of the brothers and sisters. What shall we call it? is it a "mutation," a biological "sport"? Is the germ plasm just trying a change, stimulated, it may be, by some untoward circumstance, such (let us say) as alcoholism in the father? Or shall we suppose that the disease has been in the ancestry all along, but hidden away as a "recessive" character, so that if we could push our researches far enough back we might find it? Let us remember the remarkable account given by Rutimeyer where no less than four families of cousins (in various degrees) were affected by Friedreich's disease, a sure enough indication that there was some ancestral taint. Yet no case could be found among the ancestry till in the fifth generation a record was found of their common great-great-great-grandfather who, on account of his unsteady gait, had been nicknamed the "Stumbler."

As to the actual pedigrees of these family paralyses we are beginning now to acquire some tolerably complete ones, and it might be thought that this is just the class of disease which would lend itself to a Mendelian explanation. But I understand that there are considerable difficulties about this: so much, indeed, that it has been suggested that parental infection and not heredity is the real cause. But what infection could pass down for several generations, sometimes skipping a generation, sometimes limiting itself to the male sex? For myself I cannot imagine that, and I think that the key to this lock must be provided by the laws of heredity, whatever those laws may be.

But I fear, Sir, that in pursuing the subject of heredity I have already wandered too far. How shall I, in conclusion, come back to Harvey and to the College which he loved so well? Harvey himself in the presence of a great subject did not shrink from metaphor. He spoke of bodily conceptions and of conceptions of the mind almost as if they were one, and in speaking of the generation and inheritance of ideas he says Democritus and Eudoxus "impregnated" Epicurus and the four elements of Empedocles Aristotle. Is it, then, too fanciful to ask, How does this College reproduce itself and what laws of inheritance are at work within it from generation to generation? Now we are told that Nature has reserved the work of reproduction to herself and left parents little to do in determining the inborn characteristics of their offspring, but we in this College have the privilege of actually choosing our successors. This inestimable privilege we delegate to no one, not even to a body of examiners, and we choose our new Fellows by coöption, the best of methods when well exercised, the worst when exercised badly. Rightly, then, are we reminded each year of the responsibility which rests upon each of us in this respect, and rightly is that meeting of the Council in which recommendations for the Fellowship are winnowed out held to be of supreme importance. Is there then no continuity in the successive generations of the College? Does each depend on the mere caprice or individual likings of its predecessor? No; for we, too, have our "germinal plasm" which is continuous and everlasting; I mean the noble principles upon which the College is founded and by which it has ever been maintained—zeal for the pursuit of truth whether in medicine or in other science; the dedication of knowledge thus acquired to the relief of human sickness and pain; self-effacement in the interests of the profession and of the College to which we belong; and, above all, the spirit of unity and amity. For Harvey's last and best exhortation is "to continue in mutual love and affection among ourselves"; an exhortation which he enforces with the weighty words: "Concordiâ res parvæ crescunt, discordiâ magnæ dilabuntur."

An Inaugural Address

ON

THE LIMITS OF KNOWLEDGE.

Delivered before the Medical Faculty of the McGill University, Montreal, on Sept. 22nd, 1908.

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MR. VICE-CHANCELLOR, MR. DEAN, LADIES, AND GENTLEMEN,—Such an honour as that which the faculty vouchsafed to me in the request to address you to-day led, as you may readily believe, to much searching of heart. At the first blush the prospect seemed too alluring to be foregone; second thoughts followed, burdened with doubts whether it would be possible to rise equal to the demands of the occasion; these, however, in turn faded before the feeling that the only fitting acknowledgment of your kindness lay in yielding to your wish.

It is indeed a source of much pleasure to be again amidst the fair scenes of this great Dominion, and to dwell upon the manifold beauties showered upon her by the ungrudging hand of Nature. It is delightful to gaze once more upon the broad bosom of the silver river with its emerald jewels, reflecting the glowing tints of the woods in their winsome robes. It was amongst these lovely scenes that the thrilling pictures of Parkman first held me in thrall and led me to understand, as would in no other way have been possible, the lives and works of those who, during two centuries of conflict, strove for the mastery of the new world. Here also was borne in upon me the full meaning of the charming tales of Parker, and amidst their natural surroundings the characters whose loves and hates throb in his pages took an even more living form. Under the witching wand of these and many other wonder workers who have lived in your midst, the ground is hallowed by thoughts of the past. What a marvellous vista it is! The brave stealthily gliding through the primæval forest; the pioneer pushing farther into the Western fastnesses; the

seigneur struggling for the foundation of a new nation; the priest faithful unto death, labouring for souls; the soldier freely shedding his blood for the honour of his flag; the statesman spending his energies in work for the common weal—these and a hundred more scenes rise before our eyes.

Such thoughts fill the mind with vivid pictures of the past; it is meet that we should dwell upon them. The eyes of the world were turned with warm sympathy to Canada while you recently celebrated the third centenary of the foundation of Quebec by Champlain. Well-nigh four centuries have elapsed since Cartier called the beautiful ridge near which we stand Mount Royal, "and hence the name of the busy city which now holds the site of the vanished Hochelaga." A hundred years passed away before your city was founded—years of conflict with foes without and foes within; of undaunted labours for the creation of a new France; of success and failure in the great schemes of conquest. Amongst the great names which will for all time hold a place on the scroll of fame there will assuredly be none more free from fear or reproach than that of the intrepid and lofty being who planted your fair city. Well has the historian said: "The spirit of Godfrey de Bouillon lived again in Chomedy de Maisonneuve."

To turn from general topics to those which are more nearly allied with the object of to-day, a glance may be cast at the rise and growth of the University. Its far-seeing founder died in 1813, and eight years afterwards a charter was obtained for its erection. A teaching staff was appointed in 1823 and, although many of the posts were nominal, the healing art was from the first represented, Thomas Fargues, a graduate of Edinburgh, being elected in that year as professor of medicine. The "House of Recovery" was opened for the reception of patients in 1818, when T. P. Blackwood was appointed medical officer. Three years later, in the same year which saw the foundation of the University, the Montreal General Hospital was instituted, and the first medical officers were Robertson, Stephenson, Holmes, Caldwell, and Lœdel, who organised themselves as a teaching body under the name of the Montreal Medical Institution, and began to give systematic instruction in 1824. The members of this teaching body entered the McGill University as its medical faculty in 1829, and that no time was lost receives abundant proof from the fact that in 1833 the degree of Doctor of Medicine was conferred upon William Logie, who was the first graduate of McGill University.

It is very pleasant to know that amongst the distinguished group of men who formed the pioneers of medical education in Canada several were graduates of my own university. Stephenson, Holmes, and Robertson studied and graduated in Edinburgh; the origin of McGill University on its medical side is therefore connected with "Modern Athens," and its early teachers brought to Canada the methods of the sagacious Whytt and the philosophic Cullen, as well as the spirit embodied in that wonderful academic succession furnished by the celebrated families of Gregory and Monro.

To one conning the memorials of your early past it is a source of much interest to be able to trace the homes of medicine in this great Dominion. Thus it is that the drawing of the General Hospital, as it was in 1830 in "Hochelaga Depicta," is to me full of interest, whilst the painting by Lamb of Burnside House, showing how it nestled at the foot of the mountain in 1843, furnishes a historic link in the academic chain.

It would be tedious to you, who know the various steps by which the University grew from its picturesque birthplace at Burnside till it finally reached the superb site it now holds near the old home of its founder; to those like myself, pilgrims from the motherland, there is a fascination in tracing out the successive stages of its development and in recognising how similar the mode of growth has been to that which may be seen in the old world. In the course of this development it is a very agreeable fact that the academic ties with the old country are becoming closer instead of weaker. Without dealing with such as unite Montreal to the universities of the rest of the United Kingdom, a word or two may be allowed as to the present links between Canada and Scotland. Your Chancellor holds a like position in the Northern University, situated between the Dee and the Don; there, as here, he has so fostered the growth of learning and inquiry as to merit the title of a modern Mæcenas. That many years may yet be vouchsafed to him in which he may continue his beneficent endeavours for the advancement of education is a prayer as frequently and as fervently offered on the shores of the North Sea as on the slopes of the mountain. And in this connexion let me add that the kinsman and colleague of your Chancellor, who along with him not only founded and endowed your beautiful hospital but aided the development of the McGill University by munificent gifts, must be likewise regarded as a large-hearted benefactor on both sides of the Atlantic.

Some years ago you carried away the head of one of the colleges belonging to the University in the "grey old town" to preside over your labours, while we who are connected with that ancient seat of learning have within the last few weeks spirited away one of the most brilliant of your younger colleagues. Such interchanges are fraught with far-reaching influences for good. We have many other ties between us. The names of Osler, Roddick, and Shepherd, to mention only those connected with the medical faculty, are inscribed on the rolls both of Montreal and Edinburgh. In the other faculties there are also bonds of union with many of the universities of the United Kingdom, and we are therefore not merely united by the ties of sympathy but by those of personal connexion.

The commonwealth of learning throughout the world shared the grief of the University in the loss sustained by the medical faculty through the lamentable fires which destroyed the results of many years of labour, but observed with delight the dauntless energy with which you at once set to work to repair the damage and to replace what had been swept away. The new buildings which are arising like a phœnix, as the late Dean has well put it, from the ashes of their predecessors, are an evidence of the indomitable spirit with which the University is instinct.

It would not become me at this time to dwell upon the achievements of the University in the varied walks of knowledge. The special matter to which it is my wish to direct your attention will afford an opportunity of showing that in those fields best known to me yeoman work has been done by her children. But there is one subject to which in common fairness you will allow me to refer.

About two years ago certain changes in the blood taking rise in affections of the intestines, which had till then only been described by three workers in the Netherlands, were found by Carstairs Douglas and myself to be not merely due to the presence of a bacillus in the bowel, whence toxines were absorbed into the blood, but were found to be produced by the actual entrance of the microbe into the blood, where it multiplied and poisoned the very springs of being. We felt a little glow of pleasure in having, as we thought, added a new chapter to the life-history of bacteria—one which held out, moreover, the promise of practical usefulness; our results, however, had been, unknown to us, forestalled by other observers. About a year before our work was done identical results had been obtained in the wards of the Montreal General Hospital by Blakadder with the assistance of Gillies and Duval. In a group of symptoms similar to those which engaged our attention they discovered the bacillus coli in the blood. It is a bounden duty as well as a sincere pleasure to make it quite clear that this discovery belongs to the banks of the St. Lawrence and not to the shores of the Forth. The reason of our ignorance of the Montreal results lay in the fact that those interesting observations were not placed on record until last year, and we had in consequence no means of learning the valuable facts before we published our own later investigations. In the light of what we now know it is a great satisfaction to be able to award the palm to those who deserve it. Their researches form a fitting termination to the careful investigations carried out, in this university also, by Charlton, working under the supervision of Adami.

The comparison of the past with the present affords us the best means of guiding future advances. From the failures no less than the successes of ourselves, as well as of those who have gone before us, we are enabled to discern the most fruitful paths of inquiry and are led to shun the pitfalls which have hindered effort in the past. In other words, our footsteps in the present require to be guided by the light of the past, so that the future may bring with it fruits meet for progress.

In looking about for some particular subject which might usefully occupy our attention to-day it has seemed to me advisable to take some matter with which my own work has rendered me specially conversant. That now chosen is a

subject pregnant with interest, showing how the grey dawn which we owe to the keen insight of the fathers of modern medicine has brightened into the morning light, how both sides of the world have been engaged upon it, every civilised country in a spirit of generous rivalry doing something to aid the efforts to reach the noontide of knowledge. It is a matter also full of encouragement, for it shows how much may be done by earnest men possessing apparently but small opportunities for original research. To some of us it is only vouchsafed to spin the thread and we have to learn to rejoice in cheerful vein when another weaves the web.

To the loyal worker in scientific fields it is enough if he feels that he is adding something to the general fund of knowledge. He may not be able to see at the time whither his observations lead, but he knows that, when joined to the results of other investigations, they will be useful. They may not be fitted to enter into the warp and the woof; the work of others may be of stronger stuff, for "the web of our life is of a mingled yarn, good and ill together." But even if they do not become woven into the finished fabric they have at least helped other labourers by the example they have shown.

Two of the great men who adorned Dublin during the first half of last century observed a group of symptoms which have in recent times been the object of close scrutiny. Adams, in one of the most remarkable of single contributions ever made to medicine, described infrequency of the pulse attended by apoplectic attacks in cases which presented the pathological appearances of fatty heart. He was followed by Stokes who, in adding further observations, noticed a want of harmony between the movements of the veins in the neck and of the arteries at the wrist; he stated, indeed, that the number of the venous pulsations was more than double that of the ventricular contractions. Stokes further described feeble sounds heard between the cardiac impulses. The meaning of these observations will be clear to us in the sequel. Many years passed before the observations of Adams and Stokes received any additions. It is true that a brief mention is made by Skoda of the subject, but new interest was not aroused until the appearance of some investigations by Leyden. The subject was afterwards discussed by Roy who ranged himself alongside of Leyden in favour of hemisystole as the cause of the want of harmony in the action of the veins and arteries.

To show how our various additions to knowledge are knit together it may be mentioned that almost immediately after the appearance of Roy's contribution a paper was published by Malet and myself in which we described the sound of the auricles in a healthy heart. The case was one of sternal fissure. Little did we think when placing this observation on record how it might afterwards prove fruitful. Linking it with the observations of Stokes, these isolated facts, apparently of no great value at the time, were afterwards found to be of real importance.

Some five years after our observation was placed on record Chauveau described a case of heart disease in which for the first time a dissociation of auricular and ventricular rhythm was carefully analysed by modern methods. This was followed by an excellent study in which Vaquez and Bureau still more clearly emphasised the lack of harmony between the movements of the auricles and ventricles. These investigations have been followed by the results obtained by a large number of observers, who, by means of clinical methods, have been able to demonstrate in the most complete manner that a partial or total dissociation may take place. It may seem almost invidious to single out any names in this connexion, but it is only right that we should honour those who have been pioneers in this field, and it is accordingly a pleasure to refer to the work of Moritz, His, Lichtheim, Mackenzie, Wenckebach, and Osler.

Besides obtaining such results in the investigation of the cardiac, arterial, and venous movements by the graphic method, it is full of interest to be able now to add that the sounds of auricular contraction have been over and over again heard by many observers in the intervals between the complete systole of the heart. These facts absolutely prove the correctness of Stokes's observations, and bring them into harmony with the physiological sounds described by Malet and myself.

Another addition to our knowledge of this interesting condition is due to Ritchie, Magee Finny, and Brouardel and Villaret, who, independently of each other, took advantage of the fluorescent screen in order to watch the movements of the heart. They published the interesting fact that the auricles can be seen beating in the intervals between ventricular systole. During the last three years this observation has been frequently repeated by other observers and is now well known.

Einthoven has taken advantage of the electromotive changes produced by the action of the heart, and by means of the string galvanometer has obtained beautiful tracings from cases of heart block which demonstrate beyond the possibility of doubt that the electromotive changes caused by the action of the auricles may be seen entirely dissociated from those caused by ventricular action. In ignorance of the important observations being made by Einthoven the electromotive changes in heart block simultaneously engaged my attention. My investigations were carried out with Lippmann's capillary electrometer. The movements of the column of mercury, thrown upon the screen by means of a projection microscope, showed the ordinary oscillations caused by the electric changes attending the apex beat, but, between these, smaller waves were distinctly visible and were undoubtedly produced by the contraction of the auricles.

One more clinical result obtained in this disease may be referred to before we pass on to the explanation of the condition. The arterial pressure in such cases has attracted my close attention. Observation on a good many cases has now proved that the systolic pressure may reach a level of from 270 to 300, while the diastolic may at the same time and in the same individual be as low as from 70 to 80 millimetres of mercury. This must be regarded as a most interesting fact, showing that the long interval of time following each ventricular contraction allows the high arterial pressure to fall to a low ebb before the succeeding systole occurs. It need scarcely be added that in such cases there is no aortic incompetence; nevertheless, clinical investigation of the arterial pressure yields results singularly like what we are accustomed to observe in that condition.

We have in this chain of investigations a really interesting illustration of the gradual evolution of clinical knowledge, and we must now enter upon the successive steps by means of which the different facts have been subjected to analysis and synthesis.

All of us who have sat on the upper forms at school must remember that the great epic poet of Rome tells of the happiness of him who is able to discern the causes of what he sees. The investigation of a series of appearances such as those that have now received our attention has furnished abundant interest, and therefore happiness, for all of us who have worked at the subject. Some points were found to be easy of explanation; others much more difficult. We have not merely to exercise the imagination in the search for these causes, but we may even invade the realm of speculation. It is a subject which allows opportunities to "spin the gossamer as well as forge the anchors of the mind." Our thoughts are not all endowed with the possibility of soaring to the very roof of heaven, but it is within the reach of us all to contribute what we can to the general advance and some of the suggestions, as well as many of the observations, are due to men deeply engaged in the hard work of general practice.

Until the last quarter of the previous century the heart was considered to consist of what might be termed distinct compartments, absolutely separated from each other and not united by any continuity of muscle fibres. The first light borne in on the subject came from the investigations of Gaskell who showed that there was a direct and continuous connexion of the sinus, the auricle, and the ventricle. It is exactly a quarter of a century since this great work made its appearance. Every succeeding observation has only served to prove more thoroughly the accuracy of the views which he then expressed, and to show the remarkable foresight which he manifested in his analysis of the various functions which he described. His investigations, in truth, have permitted the esoteric explanation of the condition at present under consideration. The facts unfolded by him formed, ten years afterwards, the subject of an interesting study by Stanley Kent, who, devoting attention more exclusively to the connecting link between the auricle and ventricle, showed the path by which impulses pass from the one to the other. His, in the same year, published his anatomical researches by which he

still further advanced the subject and with these investigations the first chapter of the anatomical explanation terminates. Eight years afterwards Ewald returned to the link binding auricle and ventricle in the frog, and shortly afterwards Retzer, Brœunig, and Humblet extended the observations. These workers paved the way for the elaborate investigations of Tawara, who carried out a most valuable research fully demonstrating the origin and ramifications of the structures by which the anatomical gaps separating the different portions of the heart are bridged over. Keith has more recently, in a manner as lucid as it is luminous, further extended these remarkable investigations.

The researches of Tawara have shown that the auriculo-ventricular bundle is only a part of a great system; it descends on the interventricular septum, ramifies throughout every part of the ventricular walls, and is continuous with the system of Purkinje fibres. The papillary muscles are brought into especial relation with the system and this very interesting point throws a vivid light upon the important observations made on the functions of these structures by Roy and Adami, to which the latter has again returned more recently.

Keith has illuminated the subject, as he usually does, by the brilliance of imagination as well as the result of labour. He described the musculature of the sinus as being freely continuous with that of the auricular canal and auricular appendix. In searching for a clearly differentiated system of fibres within the sinus, which might serve as a basis for the inception of the cardiac rhythm, he discovered a peculiar structure surrounding the arterial circle at the junction of the sinus and the auricle. The structure closely resembles that of the auriculo-ventricular bundle, consisting of an intimate network of pale, undifferentiated fibres with well-marked nuclei. This structure contains numerous nerve cells and nerve fibres. Although the mass is undoubtedly muscular in its main structure yet the nerves in the neighbourhood of the vena cava enter into very intimate connexion with it, so that Keith feels justified in stating that a peculiar neuro-muscular junction occurs at this point.

As assisting us in understanding the functions of the heart, the researches of MacCallum on the muscular connexions of the two ventricles, of Keith upon the special anatomy of the heart, of Porter on the relation of blood-supply to cardiac activity, and of Henderson upon ventricular movements, are far-reaching in their results and enable us more fully to apprehend the questions arising in connexion with this subject. The first has shown most distinctly that the ventricles are composed of a simple long band of muscle beginning and ending with a tendon. It has its origin in the connective tissue of the auriculo-ventricular junction on one side of the heart; it passes around the outer wall of that side and reaches the ventricular septum whence it goes on to encircle the outer wall of the other ventricle and finally terminates in the tendinous cords of that side. It is probable that the fibres of the auriculo-ventricular bundle enter into direct relation with the centre of this long scroll.

Some of the results obtained by Keith have already been referred to, but the observations which he has made from the standpoint of comparative anatomy deserve to be recalled. He has shown that the sinus venosus, the auricular canal, the auricle, the ventricle, and the bulbus, are all represented in the mammalian heart, and he has been able not merely to trace these primary divisions but to show how in the evolution of the heart in the higher mammals these various parts have been modified to suit the requirements of development. The results of the investigations of Porter and of Henderson have been of the greatest service to us in our clinical work on disturbances of the heart muscle.

Turning to the results of experimental physiology as directed more particularly to our subject, we have to acknowledge a deep debt of gratitude to certain distinguished observers. First, again, physiologically as well as anatomically, comes the name of Gaskell, in the epoch-marking work to which reference has already been made. He pointed out the existence of natural block at the auriculo-ventricular junction, and further showed that a more or less complete stoppage could be produced either by section of the auricle or by increase in the natural block. In this way he was able at will to interrupt the passage of impulses more or less completely. His, from a number of experimental investigations, showed that interference with the conduction of impulses could be produced by section of the auriculo-ventricular band. It is, however, particularly to Erlanger that we are indebted for a study of this important subject. By his ingenious method of experimentation the auriculo-ventricular bundle could be subjected to varying degrees of pressure, and he has been able in this way, as is now widely known, to produce at will every degree of partial or complete blocking of impulses. From the experiments of Gaskell, His, and Erlanger it is clear that the upper parts of the heart possess the quality of rhythmicity in a higher degree than the lower; that the rate of the heart is determined by the upper and more rhythmical portions, and if the lower and less rhythmical are separated from the upper and more rhythmical portions, the lower part may assume a rhythm of its own. From two very interesting studies by Hering and by Erlanger and Blackman, which have recently made their appearance, the relative rhythmicity, excitability, and conductivity of the different portions of the heart are most clearly brought before us.

Pathological evidence has not been long in following upon the heels of anatomical and physiological investigation. Stengel, Jellick Cooper, and Ophüls in America, and Keith and myself in Europe in the same year, have put on record instances of disease of the auriculo-ventricular band from cases of heart block. In some of these cases the structural alteration was a gumma of the interventricular septum; in others it was a simple fibroid change without any very obvious cause. In one instance which aroused a most wide-spread interest, seeing that it occurred in the person of one of the most venerable and distinguished physicians of the British Isles, the change has been found to be of the nature of a calcareous infiltration.

Such, then, are the main lines of the explanation of these interesting appearances. When we seek to inquire which of the five distinct functions of cardiac activity are involved, we discover that it is easy to demonstrate the implication of two of them. Rhythmicity in itself is not disturbed, for the auricular pacemaker pursues its even tenor; contractility is in no way lessened, since the work of the heart may be in no way diminished; tonicity, it need hardly be said, is not a function necessarily involved in this group of symptoms, although undoubtedly, seeing we deal with senile heart in many instances, this property may be lessened. The cause of the appearances lies as a rule in diminished conductivity, the auriculo-ventricular bundle being so damaged as to diminish the function or even to abrogate it. Some interesting tracings from a patient long under my care have, however, shown that the function of excitability may be disturbed, and this may therefore be partly responsible for the symptom. Hay has especially devoted attention to this aspect of the subject.

Is it possible to get beyond this point? Can we peer further into the darkness which surrounds the real cause of these varied appearances? In other words, are we able to say how the heart is endowed with such functions and in what way they are disturbed?

We may fearlessly assume that the entire realm of nature is freely open to our inquiries. The Venusian bard, whose verses have ever since the revival of learning been the solace of such a multitude as no man can number, is assuredly astray when he sings, "Nec scire fas est omnia." But while we claim the right to examine every natural phenomenon we are led to acknowledge that some facts are within our reach while others are beyond our ken. In the quest of truth it is wise to bethink ourselves of this distinction between the attainable and the unattainable. Above all it is our duty not to be dogmatic as regards matters which we cannot know. It was Huxley who said that "the assertion which outstrips evidence is not only a blunder but a crime." Some of the appearances which have been brought before you to-day have furnished an example of speculation in the region of the unattainable; of playing with words rather than working with things. Within recent years much time has been wasted in futile assertions that the five great functions of cardiac activity recognised by Gaskell are entirely due to inherent properties of the heart muscle, or, as it is put, are of myogenetic origin. According to this view, or, as it would be better to put it, according to these views—for the opinions of the myogenetic school are often so contradictory as to cancel each other—the heart lives and moves and has its

being independent of the wonderful and beautiful arrangement of nerve ganglia and nerve fibres, as also with their intimate connexions with the central nervous system. To suit these hypotheses the nervous system is allowed to interfere with, but has no part in, the production of cardiac action. Is this not a strange departure from the deep saying of Galen that "Nature does nothing imperfectly or vainly"? But this is a matter with which on the present occasion there is no time to deal. Suffice it to say that there is no proof of these assertions. Last year the subject occupied my attention in the oration of the Medical Society of London, and it was a sincere pleasure to be able to range myself beside your professor of physiology, who a few weeks before in an eloquent address gave a powerful indictment of the fallacies of the myogenesists It is unlikely that any man of science with balanced mind will commit himself to the tenets either of the myogenetic or of the neurogenetic school. We must wait for more light before we are in a position to dogmatise on this matter. "Far more of our mistakes," says Matthew Arnold, "come from want of fresh knowledge than from want of correct reasoning." The intolerance which has been shown by the protagonists on both sides as regards this question makes many of us doubt whether the "tart apostle of sweet reasonableness" was right in his remark. New facts will be gained which will help us to reach more definite conclusions as to the esoteric meaning of cardiac activity, and until we are in possession of such facts we must keep our judgment in reserve. Hence the title chosen for this address.

A few words, addressed more especially to the undergraduates of the University, may in the last place be allowed me. These must be taken as coming from an older to younger brothers. You will not expect me, in the terms of a certain school of theology, to "improve the occasion." If you do you will be disappointed. The purpose of the remarks which have been made is to bring some aspects of modern research before you, to hearten you in your studies, but at the same time to warn you of the dangers which may attend them. We have seen in one small field of the vast domain of medical study that many industrious labourers have been engaged upon the matter; that the gradual growth of knowledge has taken place by separate additions made by patient observers, and that it is within the power of each and all of us to contribute to the store of information. In all this you have great encouragement for your work to come. The illustration chosen is only a single example of what you will find in every branch of science. The first aim of every one of us must be to strive after fitness for the task which each will find. Again, one of the clearest duties lying to one's hand is to discover in which direction practical usefulness may most likely be found. In the present age omniscience cannot be our foible and a wise choice of study is an absolute necessity. To be able to grasp the real and eschew the unreal is the first requisite of him who is in quest of truth. You will be guided in your early footsteps by men of experience and distinction, who will help you to gain an insight into what is worth study. In this way you will escape the risk of resembling the dull pedant of whom the American humorist sings:—

> "A reading machine ever wound up and going,
> He mastered whatever was not worth the knowing."

In the search for truer interpretations of natural appearances we must train ourselves to build our foundations on the solid bed-rock of fact. Blowing hypothetical bubbles will not avail. It would be foreign to the genius of my race to contemn philosophical reasoning, but it is nevertheless a duty to condemn baseless speculation. Imagination rightly used is of the highest value in science,

> "But not for golden fancies iron truths make room."

The scientific method is, as Huxley has clearly stated, "Nothing but trained and organised common sense, differing from the latter only as a veteran may differ from a raw recruit." No one can successfully dispute this statement and probably few will make the attempt. There is no need for me to dwell on this theme, but it will not be out of place to add that this quality of common sense is not the possession of mankind in equal proportions. To some it has been granted in fuller measure than to others, but to most men a fair share has fallen. It is one of our first duties to listen for the whisper of this inborn wisdom or common sense which must be our final guide in all our work. May we not without any great strain apply to this gentle voice the words of an early English poet who died just 400 years ago?

> "The vertue of her goodly speche,
> Is verily myne hartes leche."

Goethe long ago frankly said that in his old age he had found it hard to be as wise as he had been in youth. This is a brilliant paradox the meaning of which is clear so that he who runs may read. But there is another side to the shield. It is within the reach of all of us to train this inherent quality by the discipline of experience. There is but one way in which this can be done: the way of hard work. In this age of strenuous endeavour it seems unnecessary to emphasise this gospel. It has been preached by many modern writers from Carlyle to Kipling, and the nobility of work in every field is now universally recognised. Upon us, most of whom are or will be concerned with the practical duties of serving our fellow men, it is incumbent to remember to what a high calling we are devoting ourselves. We have to enter into the lives of others in the fellowship of suffering as well as the brotherhood of happiness. "Man is the only book of life," says Pierre, and in this saying of Parker's interesting creation there is deep significance. It is our privilege, above all other men, to have the leaves of this book opened to us, and we must fit ourselves for its study.

In all our doings we must spend our lives in truth, faith, hope, love—clinging to that mood of mind, bent on winning to the very heart of everything; believing in real work as the means whereby in its own good time what is now hidden will be laid bare, trusting that the end of our quest will be the furtherance of knowledge and the good of mankind, and holding each of our fellow workers in such kindly thought as will lead us to be happy when any of them makes a forward step. May each of us be able to say in the words of a historic rascal, who yet had the elements of good in him, François Villon: "En ceste foy je veuil vivre et mourir."

An Address
ON
SANITATION IN INDIA.

Delivered before the Sanitary Conference of the United Provinces of Agra and Oudh at Naini Tal on Sept. 4th, 1908,

BY SIR J. PRESCOTT HEWETT, K.C.S.I.,
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GENTLEMEN,—I am here to welcome you this morning on your assembling in reply to the invitation issued in this Government's resolution of the 6th ultimo with the object of undertaking a comprehensive discussion as to the manner in which sanitary reform should be prosecuted in the United Provinces. We aim at trying to devise some scheme by which, in course of time, the conditions of life may be made healthier for the residents both of towns and villages within the province; we seek some means of giving our men and women more strength and vigour with which to undertake their duties in life and to earn their daily bread, of making their days longer in the land, of endowing them with more stamina, and of insuring for them greater power of resisting disease so as to make them more fit for every form of employment, whether it calls into operation manual strength or the faculties of the mind.

The first thing that must strike every observer is that, cleanly as are the habits of a very large number of the people of India individually, they are very prone to ignore what has been well described as coöperative sanitation. Cleanliness of person and of the habitation constitutes only part of the precautions needful to insure protection against disease, and is wholly ineffective by itself if the house is inadequately provided with light and ventilation, and if the out-of-door surroundings and the air that is breathed outside it are contaminated and infective. You have to examine the whole question of how we can improve the sanitary conditions of life throughout our province, to try to determine whether what has been done in attempting this in the past (for a

great deal has been attempted) has been on right lines; and if it has not, to consider how we should rectify our past action, and in what directions, in which we may have hitherto fallen short of our duty, we should now endeavour to extend our efforts. The subject is a vast one; few, if any, of the activities either of the individual or the State are not affected by it; and anything that I can say can but touch the fringe of the problems that you will have to consider, and can only, I fear, be directed towards impressing upon you the magnitude of the task you are called on to undertake without suggesting to you the means of overcoming it.

In the resolution summoning this conference stress was laid on the fact that it is impossible to make any certain comparison between past and present vital statistics. The actual record of the number of births and deaths has become much more accurate during the past quarter of a century, but except in the case of a few well-known diseases the village watchman—the reporting agency in the rural tracts—cannot be trusted to return the cause of death correctly. We can indeed rely on his reports regarding small-pox and cholera being fairly accurate, but he cannot discriminate between diseases the symptoms of which are accompanied by a rise of temperature, and the deaths attributed to fever doubtless include large numbers due to pneumonia, tuberculosis of different kinds, and many other diseases. Again, in the six years between 1902—when plague took hold of the province—and 1907, over a million deaths were reported to have been caused by it. How many really due to it were registered as having been caused by some other disease? Incomplete as the record of the number of deaths attributed to it in the past six years must be, it is equivalent to the normal death-roll within the province for more than six months. This factor of itself precludes close comparison between the figures of the past few years and those of less recent periods, but the former taken by themselves are so appallingly high as to demand the closest scrutiny of all who have the country's welfare at heart.

Speaking generally, the death-rates recorded in the province in recent years, both in urban and in rural tracts, are nearly three times as high as in England and Wales. It is estimated that in India nearly one out of every ten of the population is constantly sick and a person who has escaped the diseases and dangers of childhood and youth and entered on manhood or womanhood has an expectation that his or her life will extend to only 68 per cent. of the time that a person similarly situated may be expected to live in England. Infantile mortality in the province is nearly twice as great as it is in England. I quote these comparisons to show how backward we appear to be in the protection of life as compared with the mother country, but at the same time you will all realise how misleading it would be to judge our vital statistics by results in Europe and understand how vain it is to hope that we can ever attain to the standard that has been achieved in the West. We should never forget that in this province the conditions of life, which depend on the climate and connected matters, are in some respects specially unfavourable to health and longevity. The whole area of the province is 112,000 square miles. Between one-fifth and one-sixth of this is situated in the Himalaya, with a sparse population of a little over one and a half millions. The highest density per square mile—it is only 86—occurs in the Almora district. With a splendid climate and a very sparse population comparatively little remains to be done except to induce the people to pay more attention to the cleanliness of the village sites and their immediate neighbourhood. At the same time the hilly tracts are liable to occasional epidemics of cholera of great virulence which are much assisted by the practice of the hillmen of burying in running streams the victims of epidemic disease instead of following their usual practice of burning the dead. But, speaking generally, the conditions of life in the hills are much more favourable than in the plains. The area of the plains extends to 93,000 square miles and contains a population of 46,000,000. Most of this area is flat and liable to be waterlogged during the rainy season. The mean annual rainfall is between 37 and 38 inches. The monsoon of three months is wedged in between a period of intense heat all over the province and a period of milder weather which at some places merges at night into one of intense cold. The difference between the maximum temperature in the sun and the minimum temperature in the shade within a period of 24 hours sometimes exceeds 120°; that between the maximum and the minimum temperature in the shade is often 40 or more within the same period. These extraordinary variations in climate and temperature call in themselves for special precautions. They are aggravated by the conditions under which the people live, some of them inseparable from the agricultural operations of the different seasons or for other reasons unchangeable, others the direct or indirect result of neglect of recognised sanitary canons and susceptible of improvement. The houses in which the people live, whether in town or country, are seldom set on a high enough plinth. The average population and the number of houses to the square mile are higher than in any other part of India. The urban population, aggregating a little over five millions, number on the average 13,600 to the square mile, and rise in Cawnpore generally to 37,500 and in parts of the city to over 64,000 to the square mile. What this means can be imagined if you will reflect that in London with its buildings of many storeys the density is but 37,000 and that in Cawnpore the number of houses with more than one storey is comparatively small. The average density of the population in the villages is 427 to the square mile. It rises to 791 in the Ballia district, and exceeds 500 in 22 districts. The average number of persons per house (which frequently consists of two rooms or even of only one) is 5·3 in important cities and 5·5 in the rest of the country. It is estimated that the average superficial area per head of the population is something like 10 square feet, and the breathing space—150 cubic feet—just half what is required in common lodging houses in England. In the rainy season high crops are grown right up to the habitations of the villages. When the spring crops are being cultivated the same soil is, wherever possible, irrigated. Little or no care is taken to arrange for the removal of refuse in the rural tracts. The village pond or tank is the receptacle of filth of every kind; its water is regularly consumed by cattle and even by human beings. The offices of nature are performed in the fields just outside the houses, and the water of the wells is often polluted by the subsoil drainage into them. Flies are always prevalent and at certain times of the year become a pest. They have much responsibility for the communication of disease and are assisted by numerous other insects. Even this is not a complete category of the hindrances to the public health in the rural tracts, but it is sufficient to show how great are the difficulties in bringing about a salutary change.

I have already sounded a warning note against attaching too much importance to comparative vital statistics in this country but we must necessarily in approaching the consideration of all questions connected with sanitary improvement keep such statistics before us. The reported mortality per 1000 among the general population works out at the following rates in the last quarter of a century:—

1882–91	32·72
1892–1901...	32·56
1902–07 (including plague)	39·01

In the same three periods the mortality in jails has been 25·5, 27, and 16·6 respectively. The difference is marked particularly in the last period. In jails everything is done to avoid overcrowding, each prisoner being allowed a minimum of 36 square feet of superficial area and 648 cubic feet of breathing space; large sums have of recent years been spent on improved barrack accommodation and ventilation; there is an almost complete freedom from epidemics; the death-rate is not augmented by infantile mortality; food, water, and sanitation are good, and the hours of work regular. We cannot ever hope to get the death-rate among the general population down to the figure that has been attained in jails, but between the death-rates in the jails and among the free population respectively there is a large margin which is undoubtedly capable of considerable reduction. It is towards the most effectual means of effecting this reduction that you are asked to direct your minds during the session of this Conference.

The problem that you have to consider differs very much according as it is directed towards the amelioration of the conditions of life in rural or in urban tracts. The number of villages in the province is 105,068 and the average population of a village is just over 400; 37 per cent. of the rural population inhabit villages with a population of less than

500; 52 per cent. live in villages of from 500 to 2000; 10 per cent. in villages of between 2000 and 5000; and 1 per cent. in villages of over 5000. There are 453 towns the population of which varies from 264,000 in Lucknow to a population of even less than 1000 and averages about 11,600. These towns are differentiated according as they come under the Municipalities Act, the Act dealing with notified areas that were once but have ceased to be municipalities, and Act XX. of 1856, an Act to regulate police and sanitation in the smallest towns. The Village Sanitation Act applies to certain rural areas; at present it extends to some 600 villages with a population of 2000 or more. In areas other than those under the Municipalities Act or notified areas there is no compulsory registration of vital statistics by private persons. In rural areas the village watchman reports births and deaths on his periodical visits (usually twice a week) to the police stations. In the towns under Act XX. of 1856 registration is effected by the chaukidars employed under the Act, and in municipalities and notified areas there is compulsory registration. Returns are obtained in some towns from non-official practitioners differentiating the cause of death, but an enormous majority of the reports of deaths are made by an illiterate agency utterly incapable of discriminating as to the cause of death.

In the past 25 years there has been large expenditure within municipalities on sanitary improvement: 113 lakhs of rupees (over £750,000) have been spent on capital outlay, and 57 lakhs (£380,000) on establishment and repairs in connexion with the water-supply; the capital outlay on drainage works has been 57 lakhs (£380,000) and that on establishment and repairs nearly 13 lakhs (£86,000). Expenditure on conservancy has been 215 lakhs (£1,430,000). In rural tracts and smaller towns expenditure has been on a very limited scale. In six of the seven cities with a population of over 100,000 as much as 292 lakhs (£1,950,000) have been expended on these objects, on vaccination, the improvement of markets, and protection against plague. In spite of all this expenditure the death-rates now reported in some of these cities are higher then they were before. Even if allowance be made for better reporting it is still impossible to gain consolation from the returns.

Still, in the matter of the restriction of diseases against which special measures have been taken both in towns and villages, such as cholera and small-pox, there is room for congratulation on the results achieved. The improvement in the water-supply in cities, the use of permanganate of potassium in wells and of Nesfield's powders have all contributed to reduce the mortality from cholera. This is a disease the deaths from which are returned with fair accuracy. It used to be very virulent among the troops 20 years ago, but a serious outbreak in a regiment is now of rare occurrence. The disease is now usually sporadic and is often due to food contamination by flies. The average death-rate from this cause between 1882–91 was 1·68 per 1000, between 1892–1901 1·49 per 1000, and between 1901–07 1·30 per 1000. In the famine year of 1896-97 the death-rate from this cause between September, 1896, and July, 1897, was 0·96; between November, 1907, and June, 1908, it was 0·72. There are only three districts in which famine camps have been seriously troubled with cholera this year. On the other hand, in some of the districts badly stricken with famine which have also suffered from epidemics of cholera it has been possible to protect the famine workers completely. Thus in the Bara Banki district over 3000 deaths were reported from cholera, but only two occurred on relief works; in the Gonda district there were 1900 deaths among the general population and only one on relief works. Here, at all events, there is direct evidence of the success of our sanitary department's work, and it is also to be found in the continued decline of deaths reported from dysentery and diarrhœa, a result which can fairly be attributed to the improvement of the water-supply. 50 years ago small-pox devastated the country and was specially prevalent in the hill tracts. So well protected are the latter now that the district of Garhwal has the highest vaccination rate and the lowest mortality from small-pox in the whole of British India. A great reform effected in recent years has been the substitution of glycerinated lymph for humanised lymph. The death-rate in the whole province from this disease was 1·26 between 1882–91, 0·33 between 1892–1901, and 0·25 between 1902–07. Here again there is indisputable proof of the good results achieved by the sanitary department in popularising vaccination.

The statistics under the head of fever are the reverse of encouraging. They do not indeed show how many people died from malaria, but they give an enhanced death-rate in each successive period of the past 25 years. Whatever the extent to which this may be due to better reporting it is most discouraging that the death-rate reported between 1882–91 (24·41) should have risen in the next decade to 25·21, and in the five years between 1902–07 to 26·49. The last figure is an appalling one. It is swelled by lung affections, tuberculosis of all kinds, and (during the past few years) by undiagnosed plague. But after making allowance for all these causes the number of deaths due to malaria is terribly high. Great strides have been made in the investigation of this disease in recent years. The only way known to science for the propagation of malaria is by infection through the bite of the anopheles mosquito. The layman whatever he may think about the possibility of malaria being contracted in other ways must accept the view of science that so far none other has been discovered. Such action as the executive government can take then must be based on the view that what we have to aim at is the restriction of the dissemination of malaria by the anopheles mosquito. I propose to place a medical officer on duty at once to investigate the liability of certain tracts in this province to malaria and to endeavour by special measures, such as the filling up of excavations and other irregularities in the soil, treating mosquito breeding grounds with kerosine oil, the free distribution of quinine, and inducing the better classes to protect themselves from mosquito bites by mechanical means to see whether we cannot effect a reduction in the incidence of the disease in these specially affected tracts. This is only one method of attacking the question of how to check malaria, and I hope you will give the problem of how to fight it your earnest attention. I do not propose on this occasion to say much about plague. Between its recognition in Bombay in 1896 and the first year of the present century only 363 deaths were reported in this province from this cause. From 1901 to the end of 1907 the number reported in the province was 1,095,000. The statistics of this disease have recently been dealt with in a published resolution. During practically every month of the past year its attack has been feebler than for six years, and there is certainly hope that we have seen the worst of it.

Of all the vital statistics the most distressing are those relating to infantile mortality. These figures are the index of the sanitary state of a community. The reported annual death-rate of children under one year of age was 229 per 1000 infants born between 1891 and 1900. The figures for the past three years have been 263, 251, and 253 respectively. To some extent the increase has been due to epidemics of measles which have become prevalent in recent years. In the last three years the number of deaths reported to be due to such epidemics has been 22,000, 44,000, and 80,000 respectively. But, whatever the cause, it is lamentable that one out of every four children born should die before he or she has completed a year of life. Infantile mortality is indeed enormous in every country. Even in England and Wales the annual death-rate was 153 per 1000 infants born between 1891 and 1900, and 132 in 1906. Here, as in England, the mortality among infants is higher in urban than in rural tracts, and specially high in industrial centres, where women work in factories and have to neglect the care of their young children. In Cawnpore the average death-rate during the past five years was 365 per 1000. In addition to the general difficulties in the matter of improving the sanitary surroundings of the people, we have here to contend with the immaturity and ignorance of the mothers, most of them being constantly employed on work both up to the child's birth and while they are suckling it, to the want of skilled midwives, to inadequate and dirty appliances used at the time of delivery with the result of inoculating the child with tetanus, to the prolonged period for which a child ordinarily remains at the breast, to the poor clothing of infants, to their exposure to various sources of infection, and to the neglect of the treatment of their diseases when they are attacked. This is truly a formidable list of obstacles to the growth of a child of the poorer classes to a healthy maturity; and many of them cannot be removed for a long time. But this should be no reason for our failure to look the problem in the face: to my mind it is the most important one to be attacked, if

any improvement is to be effected in the health and vigour of the race.

The facts I have just enumerated are depressing enough, even if there is a crumb of comfort to be gained from the success of our efforts in effecting a reduction of the death-rate in cholera, bowel diseases, and small-pox. But hitherto we have only been looking at the death-rates, and if you will turn your attention to the birth-rates you will see reason for thinking that the efforts towards sanitary improvement made during recent years have not been altogether without fruit. Our reported birth-rate is almost the highest in India. During the period 1882–91 it exceeded the reported death-rate by 6·07 per 1000, and in 1892–1901 by 5·97 per 1000; but for the plague it would have during 1902–07 exceeded the death-rate by 8·33, but it actually exceeded it by 4·54 only. It is reasonable to argue that the more than proportionate increase in the birth-rate is to a material extent due to the improvement of the people. If the results of the sanitary measures instituted or undertaken by the Government have not been as remarkable as we could wish them to have been, this is, at all events, not due to any lack of interest in the matter. The question of sanitary reform has, indeed, been constantly before the Government ever since the report of the Royal Commission on the Sanitary State of the Army in India was published 45 years ago. The principle adopted by the Government of India as long ago as 1879 was that it was undesirable to resort to stringent legislative or administrative measures to enforce village sanitary reform, and that until the sanitary condition and healthfulness of towns had been generally brought up to at least a fair standard, and the objects of sanitary reform had become more generally understood, it would be unwise to do more than to endeavour by precept and advice, on every suitable opportunity, to secure improvement of the sources of the water-supply in villages, the systematising and rendering innocuous of the habit of resorting to the fields to obey the calls of nature, and the improvement of the surface drainage of village sites. The experience of the past 30 years has demonstrated over and over again that it is useless to attempt to dragoon the people into taking sanitary precautions. Violent remedies are of no service to sanitary progress: if advance has been slow let us hope it has been sure, since one thing of all others is certain, and that is that it never can be quick. We can never move over the people: we must move by and through them.

A Sanitary Board was created nearly twenty years ago as a consultative body for the province: it was contemplated that, when considering the sanitary requirements of a particular revenue division of the province, it should be strengthened by the addition of members to represent such division. One duty that was expected of it was that it would carry out a sanitary survey in selected parts of the province. Something much more definite than has yet been attempted seems to me necessary in this latter direction. The constitution of the board has been altered from time to time, but its working has not been successful hitherto, and my observation of its proceedings in recent years has convinced me that its system of transacting business has become more and more formal. The Government of India has determined that the time has come when the constitution and functions of the board should be reconsidered, a step which seems to me personally most desirable. In particular it is essential that the non-official community should be adequately represented on it. The Government Sanitary Department consists of a sanitary commissioner, two deputy sanitary commissioners, and a large vaccination staff. It is for consideration whether the department should not be enlarged and its functions extended. In municipalities large sums of money are spent on ill-organised and badly equipped establishments. It is proposed to constitute a sanitary service, the members of which would be utilised for service in the different municipalities. All these matters connected with establishments are among those on which your advice is sought by the Government.

Although laws will not in themselves make people follow sanitary principles, they are necessary to insure the proper fulfilment of rules with which the people have become familiar and generally recognised to be in the interest of the community generally, as well as for raising of funds and to give legal authority to acts undertaken to improve the public health. I have mentioned the Village Sanitation Act and the sanitary provisions of the Municipalities Act. There are also Acts relating to lodging-houses, to water works, and to sewerage and drainage. The Government is about to relieve small towns to which Act XX. of 1856 applies of the charges for police, and their revenues (some three lakhs of rupees = £20,000 a year) levied under that Act will be available for sanitary purposes. This change involves a change in the law and your opinion is invited as to the manner in which this should be carried out. It will also be open to you to consider whether any changes are needed in the Village Sanitation Act or in the provisions of the Municipalities Act regarding sanitary matters, or in any of the other Acts that I have just referred to.

As you are aware, the Government of India made to this Government, beginning with the current financial year, a grant of five lakhs (£33,000) of rupees a year to be devoted to sanitary improvements. I have determined to begin with an endeavour to improve the congested areas of certain of the larger towns by cutting broad roads through them. Schemes are in an advanced stage and will soon be commenced in Allahabad, Lucknow, and Cawnpore. I am also providing the Benares municipality, which has done a great deal in this direction in the past 25 years, with funds to cut a single road in the city. We hope to facilitate traffic and the perflation of air through these cities, to clear out specially insanitary areas, and to erect a few model dwellings on sanitary lines. Some people consider the erection of model dwellings at all to be a work of supererogation. I cannot agree with them, any more than with those who go to the opposite extreme and expect the State to take up the work of house building on an unlimited scale, and to arrange for a general housing of the population of towns in suitable buildings. All that we can try to do is to build a few—a very few—buildings suitable for different classes at a moderate cost, and to look to the public and builders to copy the models. Papers regarding this proposal will be placed before you. So far the great difficulty has not been overcome—viz., that of designing a sanitary house for the poorest classes at a cost which will not make its rent prohibitive. Other methods of improving conditions in towns that suggest themselves for your consideration are regulations to preserve a minimum space for new houses, to provide for building on standard plans, some form of encouragement to people whose houses are specially well kept, the strengthening of the authority of the health department and the more efficient enforcement of municipal by-laws for sanitary purposes, better markets and more supervision of the sale of articles of food and drink, and more complete drainage and paving schemes which are essential before the benefits of a filtered water-supply can be fully enjoyed. In rural areas the provision of pure water, the drainage of the village site, and attention to simple rules of conservancy are the chief requirements. Here, too, it would be well to have some definite area fixed for all new houses, and if possible to prevent excavations from being made except at a considerable distance from the village site.

Above all, throughout the country we want to teach the people to look after themselves; to educate them in the principles of simple hygiene, and to induce them to abandon insanitary habits. We may pour out money like water on sanitary improvements all to no purpose if we do not get the people to realise that they are for their good. Let us not forget that such success as has been attained in England is due to the general readiness of the people to believe that sanitary regulations, irksome though they may appear, are designed for their good and must be obeyed. By what means can we best lead people of this province to understand this first principle of all sanitary progress? Instruction of the young at schools and colleges will not be without its effect, but what is really needed more than anything is that the educated members of the community should bring home to the poorer classes the merits of practical hygiene. That has been well defined to aim at "rendering growth more perfect, decay less rapid, life more vigorous, death more remote." In season and out of season those who have learnt the lesson that without sanitation there can be no moral or material progress should preach to the public on the text that health means happiness. With stronger sinews the daily toil of a generation reared under more favourable conditions than those of the past will become more easy. So shall the earth be led more readily to bring forth her increase; here, we may surely hope, lies the

road towards industrial progress throughout the land. The goal may appear to be far away, and indeed it is, but let us make a start on the road towards it; I feel sure that we could put no nobler aim before us.

NOTES OF A CASE IN WHICH NINE CONFINEMENTS WERE TERMINATED VARIOUSLY:—

(1) BY THE NATURAL POWERS; (2) BY SYMPHYSIOTOMY; (3) BY INDUCTION OF LABOUR AND FORCEPS; (4) BY FORCEPS ALONE; AND (5) BY CÆSAREAN SECTION.

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THE notes of the case are shortly as follows. The subject, now, in 1908, aged 34 years, has been married 16 years and has had nine children and one miscarriage.

First confinement.—This took place on March 2nd, 1892, at full term and the patient was delivered naturally. The child, a female, was said to have been small, and it died from wasting when four months old.

Second confinement.—This occurred on Feb. 12th, 1893. The patient was said to have been in labour for three days. The membranes ruptured at 2 A.M. on Feb. 12th. Attempts were made to deliver the child by the forceps at the patient's home but failed. She was admitted into the London Hospital under my care and I saw her at 9.30 A.M. The os was nearly, but not quite fully, dilated. The vertex was presenting in the fourth position and was definitely engaged. The fœtal heart was distinctly heard. The patient was having strong pains. Blood-stained urine was drawn off with the catheter. At 2 P.M. the os was fully dilated but there was no advance of the head. The caput succedaneum had increased in size and the fœtal heart was still audible. Chloroform was administered and a deliberate effort was made to effect delivery with the forceps, but it was found impossible to do so. Accordingly I performed symphysiotomy by the open method. Owing to an irregular projection in the line of the articulation the separation of the bones had to be completed with a saw. When the pubic bones were five centimetres apart the head was easily delivered with the forceps. The child, a male, was born alive and is at the present time (April, 1908) alive and well. Convalescence was long in being established, chiefly owing to incontinence of urine for some time after the operation and to the fact that the wound made by the symphysiotomy suppurated. A piece of dead bone was removed on March 25th. Ultimately the patient recovered complete control as regards the bladder and the operation wound healed soundly. The external measurements of the pelvis before the operation were as follows: between the anterior superior spines = 8¼ inches; maximum distance between the crests = 10⅜ inches; external conjugate = 6 to 6¼ inches. After the wound was soundly healed there was a vertical depressed cicatrix in the middle line in the region of the symphysis, and the external conjugate, when the anterior limb of the callipers was placed at the bottom of the cicatrix, was 5¼ inches. The other measurements were the same. So far as I can find, this symphysiotomy was the first to be performed in England since 1782, and the first successful one as regards its result. (See THE LANCET, August 5th, 1893, p. 300.)

The third confinement (January, 1895).—This took place in the London Hospital. Labour was induced at eight months and delivery was effected with the long forceps. The child was a female and is alive and well now (April, 1908).

The fourth confinement (Nov. 10th, 1896).—This also took place in the London Hospital. Labour started naturally at the eighth month. The presentation was the second vertex and delivery was effected with the forceps easily. The child, a male, is alive and well now (April, 1908).

The fifth confinement (Nov. 25th, 1898).—This also occurred in the London Hospital. Labour started naturally at eight and a half months. The presentation was the first vertex. Delivery was effected with much difficulty with the axis traction forceps and the child was stillborn.

The sixth confinement (Nov. 1st, 1899).—This also occurred in the London Hospital. Labour was induced at eight months. The presentation was the first vertex. Delivery was effected by the forceps with difficulty. The child, a female, weighed 6 pounds, and is alive and well now (April, 1908). The mother developed lobar pneumonia on the fourteenth day but ultimately did quite well.

The seventh confinement (Dec. 19th, 1901).—Labour began spontaneously at seven months. The patient was admitted into the London Hospital in labour; the breech and trunk were born in the receiving room and the arms in the corridor as she was being taken up to bed. The head was delivered with forceps as soon as she reached the ward. The child, a male, only lived 15 hours.

The next pregnancy terminated by a miscarriage at three and a half months. The patient did not come into the hospital but was treated at home and did quite well.

The eighth confinement (May 28th, 1903).—This occurred in the London Hospital. Labour was induced at eight months; the presentation was the third vertex. The child was stillborn.

The ninth confinement (Dec. 27th, 1904).—The patient was admitted into the hospital in labour. The vertex was presenting, the os was nearly fully dilated, and the membranes were unruptured. After rupturing the membranes the forceps was applied without success. Accordingly I performed Cæsarean section and delivered her of a male child which is alive and well now (April, 1908). With the view of rendering subsequent pregnancies unlikely I removed a portion of the Fallopian tube on each side. Up to the present there has been no other pregnancy, and as there has never been hitherto anything approaching such an interval as three and a half years between any of the pregnancies it seems as if what was done is proving effectual in this particular case.

The patient has now (April, 1908) five children living. Of these one was born by symphysiotomy, one by Cæsarean section, two by the induction of labour and forceps, and one by spontaneous premature labour and forceps.

As regards the four children she has lost, *one was born naturally.* This was the first. It is said to have been at full term, but the child was very small and died when four months old. Seeing how often labour began prematurely in her subsequent pregnancies, no less than three times, it seems not improbable that the first child was premature. *Two were born by spontaneous premature labour*, at eight and a half and seven months respectively, delivery being effected by forceps. The former was stillborn and the latter only

Table of the Nine Confinements.

Confinements.	Mode of delivery.	Sex of child.	Result as regards child.
First.	Natural labour at term. (March 2nd, 1892.)	Female.	Child died from wasting when 4 months old. Said to have been small and labour only lasted 6 hours.
Second.	Symphysiotomy at term. (Feb. 12th, 1893.)	Male.	Child alive and well, April, 1908.
Third.	Induction of labour at 8 months, forceps. (January, 1895.)	Female.	Child alive and well, April, 1908.
Fourth.	Spontaneous premature labour at 8 months. (Nov. 10th, 1896.) Forceps (easy).	Male.	Child alive and well, April, 1908.
Fifth.	Spontaneous premature labour at 8½ months. (Nov. 25th, 1898.) Axis traction forceps; very difficult.	No note.	Child stillborn.
Sixth.	Induction of labour at 8 months. (Nov. 1st, 1899.) Forceps (difficult).	Female.	Child alive and well now, April, 1908.
Seventh.	Spontaneous premature labour at 7 months. Breech. Forceps to head. (Dec. 19th, 1901.)	Male.	Child only lived 15 hours.
Eighth.	Induction of labour at 8 months; third vertex. (May 28th, 1903.)	No note.	Child stillborn.
Ninth.	Spontaneous labour at term, Forceps failed. Delivery by Cæsarean section. (Dec. 27th, 1904.)	Male.	Child alive and well, April, 1908.

lived 15 hours. *One was born by induction of labour* at eight months. The child was stillborn.

It will be noticed that in three cases labour was artificially induced, and of the children two out of the three were saved and are alive now, April, 1908, whereas in the three cases where labour came on prematurely of itself two out of the three children were lost.

As regards symphysiotomy and Cæsarean section in this case, both operations were performed only after failure to effect delivery of a living child by the forceps. It may be asked why symphysiotomy was not performed on the second occasion instead of Cæsarean section. One reason was that there were grounds for believing that the pubic bones after the symphysiotomy were united partly by bony union. The other chief reason was that I much prefer Cæsarean section to symphysiotomy. I believe the former to be little, if at all, more dangerous, while the convalescence after it is so much more rapid and satisfactory. From the point of view of the child it runs little or no risk in Cæsarean section but a very definite risk in symphysiotomy. The success of the latter as regards the child depends largely on a very accurate estimation of the pelvic measurements and also of the size of the child's head. While the pelvis may generally be measured with approximate accuracy the size of the child's head in relation to it must be more or less an uncertain factor. For my part, I agree with Whitridge Williams in feeling very little inclination to perform symphysiotomy rather than Cæsarean section in future.

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SOME POINTS ABOUT PUNCTURE OF THE BRAIN.

BY PROFESSOR H. TILLMANNS, M.D.

PUNCTURE of the brain, like trephining, is a very old operation and was practised at the time of Hippocrates. In recent times particular attention has been paid to this operation by Middeldorpf, Souchon, Schmidt, Kocher, Payr, and more especially by Neisser and Pollack. Neisser and Pollack[1] have written a long treatise on the subject. They cite 36 cases in which puncture of the brain was performed 136 times. We certainly gather from their observations that in suitable cases excellent results may be obtained from puncture of the brain both from the diagnostic and from the therapeutic point of view. It is remarkable that puncture of the brain has not been more universally studied. We find little or no mention of the operation in the handbooks on internal medicine or on neuropathology. As in the case of lumbar puncture, puncture of the brain will certainly come to be more universally practised, both for the purpose of diagnosis and also for treatment of diseases of the brain.

A *diagnostic*, that is an exploratory, puncture is indicated in all cases where the diagnosis is uncertain. Where injury or disease of the cranial cavity or of the brain is evident, the typical trephining operation will of course be performed. A diagnostic puncture is indicated when there are signs of pressure on the brain or when an accumulation of blood, pus, or other fluid is suspected either in the cranial cavity, in the brain itself, or in the ventricles of the brain; also in the cases of cysts, tumours, foreign bodies, &c. In certain cases the diagnostic puncture must be immediately followed by the definite operation—that is, trephining and removing the cause of the disease. Neisser and Pollack in particular have shown that even in advanced cases of pressure on the brain—for instance, in cases of intracranial hæmorrhage, extravasation, cysts, &c.—puncture can give excellent results and bring about cures which could hardly be expected.

Therapeutical puncture has been principally practised in cases of hydrocephalus, dropsy of the ventricles (in some cases with subsequent drainage), and also for the purpose of making injections—for instance, of tetanus antitoxin in cases of tetanus—into the cranial cavity, into the brain itself, or into the lateral ventricles. This intracranial injection of tetanus antitoxin has rightly been abandoned in favour of subcutaneous injections, into the veins, or better into the spinal cord, and of endoneural injections, particularly into the larger nerves which must previously be laid bare. For instance, in the case of wounds to the hand where tetanus is suspected, I recommend, as do Anschütz and others, an immediate prophylactic injection of tetanus antitoxin into the exposed brachial plexus, as tetanus poison, according to the experiments of Hans Meyer and Ransom, only reaches the central nervous organs through the axis cylinders of the motor nerves. This endoneural injection of tetanus antitoxin is particularly efficacious, when made prophylactically, before the appearance of the actual tetanus symptoms.

The technique of aseptic puncture of the brain is as follows. The preliminaries are the same as for trephining: shaving of the particular part of the scalp, in some cases of the whole head, and thorough cleansing of the same with soap, spirits of soap, ether, benzene, or alcohol. We generally employ local anæsthesia with cocaine-adrenalin or novocaine-adrenalin or, if necessary, general anæsthesia. The spot where the operation is to be performed can be fixed, if necessary, with a craniometer. The point is found partly by studying the existing symptoms—for example, of the probable seat of a tumour, of an accumulation of blood or matter, of a cyst, &c. In other cases the spot is arbitrarily fixed when it is decided to puncture the ventricle. Occasionally general circumstances have to serve as a guide to the point where the puncture is to be made. A lesion of the larger blood-vessels and of the cerebral sinuses must, of course, always be avoided. When the spot has been selected either a small incision is made down to the bone and the periosteum is pushed aside, or else section of the pericranium is avoided altogether. In the latter case a hand or electric brace, fitted with a round-headed Doyen or Sudeck drill, is pressed firmly on to the skin, which is pierced at the same time as the bone below. When drilling through the bone it is advisable to press more firmly at first than later in order to avoid injuring the dura mater after piercing the inner table. Injury of the dura mater is best avoided by first using a broad-pointed, oval-shaped Doyen drill to pierce the cranium, and then using a ball-pointed Doyen drill to pierce the inner table. With this drill an injury to the dura mater is impossible. Payr recommends using a drill fitted with a guard against cutting too deep. Hæmorrhage of the bone can be stopped by spreading on aseptic wax. When the cranium has been pierced a fine hollow needle fitted to a Pravaz syringe that closes well is inserted and suction is produced. This suction must be performed as delicately as possible so as to avoid causing hæmorrhage. The fluid matter which is abstracted should, if necessary, be examined at once microscopically and bacteriologically. Should the puncture produce no result, or should it be impossible to elucidate the case sufficiently through the small aperture in the bone, the opening can be enlarged as required either with a larger ball-pointed Doyen drill or with a Dahlgren forceps in order, for instance, to judge the pulsation of the brain, intracranial pressure, &c. When a larger opening has been made the dura mater should be taken hold of with a small-pointed hook and cut crosswise with a very sharp thin knife. The suspected hæmorrhage, abscess, or cyst is then pierced with a fine hollow needle or a thicker one; grooved needles or a very fine sharp knife can also be used. In cases of tumour this simple aseptic piercing of the cranium with the ball-pointed Doyen drill is also devoid of danger, and Neisser and Pollack have shown that with the above-mentioned simple puncture the presence of a tumour can be discovered—for instance, in the frontal lobe of the brain—where it had not been expected and where it would have been impossible to ascertain its existence in any other way. If necessary the puncture can be repeated, as the operation is relatively simple. Neisser once punctured nine times in succession and finally succeeded in locating the suspected tumour. In the cases of newly born children and of hydrocephalus it is usually not necessary to pierce the bone. The cranium is opened at a suitable membranous spot where there is neither a large blood-vessel nor a cerebral centre—for instance, next to the sinus longitudinalis.

Various points of the cranium have been recommended for the puncture of the lateral ventricle. This operation is especially indicated when there is an accumulation of liquid in the same, particularly in cases of hydrocephalus internus. In certain cases the puncture is combined with a subsequent drainage of the ventricle. The motor area, the neighbourhood of the fissure of Sylvius, and the known centres of

[1] Neisser and Pollack: Mittheilungen aus dem Grenzgebeiten der Medizin und Chirurgie, Band xiii., Hefte 4 and 5.

special sense are to be avoided. Von Bergmann entered the cranium from in front, close over and to the inner side of the frontal eminence, and inserted the hollow needle through the frontal lobe of the brain backwards and keeping to the inner side. Keen punctured the lateral ventricle from the side in the following manner. The cranium was opened 3 centimetres behind and 3 centimetres above the external auditory meatus—that is, 3 centimetres above Reid's base line, which is drawn from the lower border of the orbit through the middle of the meatus. The needle is inserted in the direction of an imaginary point 6 centimetres vertically above the external auditory meatus of the other side and through the second temporal convolution. From 4½ to 5 centimetres deep lies the lateral ventricle of the brain in the course or at the beginning of the descending cornu. Keen performed the operation of puncturing, draining, and irrigating the lateral ventricles with satisfactory results. Mayo Robson also recommends puncturing the ventricles from the side, but through the first temporal convolution.

As do Kocher, Neisser, and Pollack, I recommend puncturing the ventricle from above, through the frontal bone about 2 centimetres from the central line and 3 centimetres from the precentral fissure. The hollow needle must be pushed downwards and backwards. You strike the ventricle at a depth of from 5 to 6 centimetres. The ventricles can also be drained very well from above. Care must be taken not to insert the drainage-tube too deeply into the ventricle, so as to avoid injuring the opposite wall. This can easily be avoided by fitting a ring or shield to the tube.

As it offers so little danger of infection, subcutaneous drainage is most advantageous. For a really efficacious draining of the ventricle Payr recommends transplanting living pieces of human arteries, taken, for instance, from the arteria radialis or brachialis, into the lateral ventricle in such a way that the other end becomes grafted in the sinus longitudinalis. In this way the serous fluid from the ventricle is carried away by the blood. This operation can naturally only be successful when performed in the best way in every respect. From what we know to-day of transplantation it may reasonably be expected that living pieces of artery can be thus grafted into the ventricle and sinus longitudinalis.

Finally, the ventricle may also be punctured from behind, from the occipital lobe. According to von Beck the tip of the posterior cornu is met with at a depth of about 3 centimetres, if the cranium is opened 4 centimetres over the protuberantia externa and 3 centimetres to the side of the central line of the skull, in which case the needle is inserted in a forward and slightly upward direction.

Leipsic.

NOTES ON

679 OPERATIONS PERFORMED UNDER SPINAL ANÆSTHESIA (COCAINE OR STOVAINE) BY TUFFIER'S METHOD.

BY DR. SABADINI,

SURGEON TO THE CIVIL HOSPITAL, ALGIERS.

(*Translated for the Author by* ALFRED S. GUBB, M.D. PARIS.)

IN August and September, 1903, even before Dr. Fourneau read his paper on stovaine at the Académie des Sciences (February, 1904) and Chaput his communication to the Société de Biologie (May 2nd, 1904) I found, in the course of a visit to various hospitals of Paris, the provinces, and abroad, that the majority of surgeons were ignorant of this method of inducing surgical anæsthesia, while some indeed frankly stated their view that the method was absolutely unphysiological and dangerous. Of the latter it was evident that none of them had ever tried it and their statements were obviously based merely on impressions derived from the medical journals. Yet the remarkable publications of Leonard Corning and of Tuffier (1889), the inventor of the method, and of his pupils, Cadol and Nicolendorff, the contributions by Nicoletti of Naples, Professor Bier of Kiel, and his assistant Eden, and those of Schiani and Durante of Italy, had peremptorily established the fact that the introduction of cocaine into the spinal column produced widespread anæsthesia *without circulatory or respiratory disturbance and that cocaine determined no grave changes in contact with the nerve elements.* Since that time numerous articles have appeared in the various medical journals in France and elsewhere by surgeons who have practised this method of anæsthetisation with satisfaction to themselves and benefit to their patients.

Why, then, this ostracism or this indifference in regard to a method which had been fully tried? In part no doubt to the attacks of Réclus and Laborde, the latter, by the way, being a physiologist and not a clinician, but neither attack was supported by any weighty reasons. Leguen's two mishaps and Broca's fatality, neither of which could fairly be attributed to the cocaine, seem to have made surgeons hesitate. My object in publishing my statistics of spinal cocainisation is to show that lumbar anæsthesia is in no wise dangerous and that the accusations which have been levelled at the method by its detractors are without foundation.

SPINAL COCAINISATION.

It was in July, 1900, that I for the first time saw Tuffier practise spinal anæsthetisation at the Lariboisière Hospital for the removal of a uterine fibroid. The anæsthesia was complete and was not attended by any untoward incident. On my return to Algiers I at once put the method into practice, so that my experience dates from August, 1900.

I may state at once that I have never imposed spinal cocainisation on my patients. Having proposed it, in the event of refusal I gave chloroform or other general anæsthetic according to circumstances. The cases comprise operations of every degree of severity: resection of ribs, hydatid cysts of the liver and peritoneum, strangulated hernia, abscess of the liver, eventration, incised wounds of the abdomen and contained viscera, on the anus and rectum, with a very large proportion of operations on the genital organs of both male and female, and on the limbs.

Age.—The patients' ages varied from 15 to 93 years and age *per se* is not regarded as a contra-indication.

Nature of the operation.—The operations performed under spinal anæsthesia were always low down—i.e., below the level of the umbilicus, anæsthesia extending upwards *as a general rule* to within two fingers' breadth below the mammæ.[1] Yet I have removed three mammary cancers by this method and done one resection of the elbow for tuberculosis in a girl, aged 18 years. The dose in these four cases was 3 centigrammes for the first three and 4 centigrammes for the fourth. In order to insure diffusion of the cocaine I was careful to keep the patient in Trendelenburg's position for ten minutes after the injection but anæsthesia was not complete, and I was fain to have recourse to chloroform, so that I have not repeated the experiment. In empyema I usually resect the tenth rib and in these instances the anæsthesia was sufficient.

By employing spinal anæsthesia only in persons who willingly submit thereto one reduces the number of failures; these in my experience amounted to about 11 per cent. It is with cocaine as it is with ether and chloroform, by which I mean that there is such a thing as idiosyncrasy or rather that the anæsthetic dose varies according to the individual. I am inclined to think that if we adopted in respect of cocaine the procedure which Chaput has adopted for stovaine—that is to say, if a further injection of 1 or 2 centigrammes were made—complete anæsthesia might be obtained in every instance. It was noted that most resistance was shown by alcoholic and nervous subjects. I recall the case of a nervous woman with a double pyosalpinx who only reluctantly agreed to the injection and obliged me in the middle of the operation to call chloroform to my aid. Yet this very patient confided to her neighbour that as a matter of fact she did not feel anything but that the bandage having fallen from her eyes she saw her belly open and began to scream. This is not infrequently the case; the patient feels no pain but owing to a lack of surveillance they see what is going on and get alarmed, or it may be they feel when tissues are being dragged upon as during the removal of large uterine fibroids.

Immediate effects.—By this I mean the subjective phenomena between the fifth and the fifteenth minute after injection such as pallor, sweating, nausea, vomiting, and occasionally *but rarely* marked apprehension; and, secondly, epileptoid tremor of the lower limbs and fatal syncope.

[1] I have invariably employed Poulleno's solution 2 centigrammes per bulb.

Some patients described the malaise as of the nature of sea-sickness, but there is a total absence of uniformity in the symptomatology and such symptoms as presented themselves occurred separately and in very variable degree. Vomiting was noted in 22 per cent. of the cases. In 7 per cent. of these there was sweating and in 14·7 per cent. nausea. As a general rule the vomiting did not last more than five minutes and but very rarely has it recurred later in the day or on the following day. Since 1905 I have succeeded in reducing the frequency of nausea and vomiting by 50 per cent. by giving the patients their breakfast before making the injection. On several occasions the nausea, &c., subsided on the administration of a liqueur glassful of Chartreuse. Vomiting is admittedly a disagreeable incident but we are equally exposed thereto when we use chloroform and ether. Epileptoid tremor of the lower limbs was noted in three cases but in no instance was it severe enough to prevent my going on with the operation.

Fatal syncope is one of the gravest accidents urged against the method, especially since the cases of Legueu, Broca, and Dumont. I am pleased to report that nothing of the kind has occurred in my practice for I cannot admit as imputable to the method the case recorded in my pupil, Genova's, thesis. The subject was a man, 31 years of age, who was sent to be operated on at once for pyo-pneumonia. As a matter of fact he was almost moribund. The temperature was 41° C., the pulse was 130, with marked and repeated rigors. The injection was made at 10.40 and the pulse soon after was 132. While engaged in sterilising my hands the patient, not being able to breathe lying down, struggled into a sitting position, whereupon he was seized with intense dyspnœa and soon died. Post mortem we found an enormous purulent effusion into the pleural cavity, with a large quantity of fluid in the pericardium and bilateral nephritis. Death followed the injection almost at once so that if it were due to the cocaine the latter would have to be assumed to be capable of instantaneous action which is not in accord with my experience; indeed, I felt so strongly that death was in no wise imputable to the cocaine that I went on employing the method as in the past.

Like chloroform, ether, methyl chloride, &c., cocaine has its contra-indications which must be borne in mind. Advanced cachexia, bilateral nephritis with scanty urinary secretion, myocarditis, pericarditis with effusion, and non-compensated cardiac affections are pathological conditions that absolutely prohibit the use of cocaine. This the surgeon must bear in mind lest he run the risk of grave disaster which would tend to bring a very useful method into disrepute.

Later disturbances.—The only two untoward consequences at a later period have been headache and rachialgia. The headache comes on either on the day of the operation, possibly with slight rise of temperature, or on the day following. It was noted in 9·36 of the cases. In one case, that of a hysterical woman, it lasted three days and resisted all treatment. The incidence of the headache, moreover, is very variable: it was 18 per cent. among the male patients and 19 per cent. among the female patients during the period 1901–02. Between July, 1902, and July, 1903, the proportion was only 6 and 1·8 per cent. respectively, while since 1903 it has been 2 per cent. in men and 0 per cent. in women. These differences may be explained by the fact that in the early times it was my practice to allow the escape of a quantity of cerebro-spinal fluid roughly equal to the amount of fluid to be injected. In view of the relief to the headache in meningitis afforded by the evacuation of 40 or 50 grammes of cerebro-spinal fluid I made up my mind to evacuate more freely and instead of making the injection as soon as the needle was introduced it has been my habit to let the fluid trickle away while I slowly filled the syringe, taking the greatest care to expel every trace of air from the fluid to be injected. At the beginning no note was taken of the amount of cerebro-spinal fluid allowed to escape but later it was measured and we found that when the pressure was small some 10 or 12 grammes came away, whereas if high we obtained from 15 to 20 grammes. I may add that it sometimes happened that the temperature rose in the afternoon to 38° or 39° C. with accompanying headache but this was never severe enough to prevent the patients going to sleep. Patients who are prone to migraine seem to be more subject than others to post-operative headache, and in these subjects the headache follows the injection of stovaine just as frequently as with cocaine. I have remarked that arthritic and alcoholic subjects, especially if suffering from arterio-sclerosis, are especially liable to headache after spinal anæsthesia. Rachialgia is alleged by some observers to be a sign of meningeal irritation but although a few patients complained of pain in the spine it never amounted to positive inconvenience.

Delayed troubles.—A great deal has been said and written about the ultimate effects of cocaine on the nerve centres but these allegations must be judged in the light of practical experience. Now it is some seven years since I began to employ spinal anæsthetisation and among the many hundreds of persons upon whom I have practised the method not a single instance of medullary mischief has been met with in such as have since been seen. As for the others, we may be sure that if anything of the kind had supervened we should infallibly have been informed of the fact either by the relatives or by the medical man.

I therefore feel justified in asserting on the strength of a somewhat extensive experience that spinal anæsthesia by means of cocaine is practically devoid of danger, provided, of course, that asepsis be perfect. The same precautions must be taken as for a laparotomy, for the danger lies not in the introduction of therapeutical doses of cocaine into the spinal canal but in the possibility of affording entrance to pathogenic organisms. In my opinion all accidents that occur are to be ascribed to a defective technique and not to the method *per se*.

I do not pretend that the method is free from drawbacks of any kind. There is the headache, for instance, but although in certain cases it was decidedly troublesome it has never been "awful," and I have shown what can be done to reduce this symptom to a minimum. Admitting the reality of this drawback, can it be allowed to weigh against the unquestionable advantages of the method? One has only to compare the appearance of the patient who has been anæsthetised by spinal cocainisation and that of one who has been rendered insensible by the aid of chloroform or ether. The former is calm, smiling, self-possessed enough to express his surprise at the novel experience and to thank the surgeon for his care and attention; then, too, he is able to take food before and immediately after the operation, while the other is absolutely prostrate, is still sleeping, or is awake and vomiting. In the latter, too, there is more or less pronounced operative shock which is conspicuous by its absence in the former.

The method is invaluable for the country medical man who is so often obliged to act both as anæsthetist and operator, for he has nothing to fear so far as the anæsthesia is concerned, and he is not exposed to the risk of a scare. Then, too, many patients have an invincible objection to being "sent to sleep," and in these spinal anæsthesia is the ideal alternative. On the other hand, I strongly disadvise recourse to this method for persons who object to it. For the indifferents who care not what plan is adopted it is easy to prevent their knowing what is going on. The eyes should be covered with a light bandage and absolute silence should be maintained. The only real drawback that I recognise in respect of this method—and it is a very awkward one for the surgeon—is that in certain nervous and alcoholic subjects the anæsthesia is not complete. This difficulty, after all, can be overcome by giving chloroform or ether, which in this event act much more readily and in much smaller doses.

Conclusions.—1. Spinal cocainisation is absolutely free from danger. 2. Spinal cocainisation, by Tuffier's method, may be employed from 10 or 15 years of age up to extreme old age for all operations on parts below a line running horizontally across two fingers' breadth below the breasts, or we may take the eighth rib as the limit. 3. The drawbacks alleged against the method can be minimised by attention to the points referred to to such an extent as to render them quite negligible in view of the advantages—viz., absolute safety, suppression of operative shock, &c. 4. It is an excellent mode of inducing anæsthesia which has been unjustifiably decried and deserves to be practised under suitable conditions. 5. My experience with stovaine is not sufficient to enable me to formulate a definite opinion, but it is my intention in future to employ stovaine instead of cocaine in order to arrive at a trustworthy conclusion as to their respective merits.

SPINAL STOVAINISATION.

So far I have employed stovaine in 108 cases in patients between 18 and 71 years of age in doses of from 5 to 10

centigrammes. In one case 15 centigrammes were injected by error, the patient being a chronic inebriate with congested lungs who was brought in with double malleolar fracture and who refused chloroform. He presented very disquieting symptoms: intense dyspnœa, cyanosis, hiccough, thready pulse, headache, and vomiting with faintness. Dry-cupping to the chest, injections of caffeine, and inhalations of oxygen overcame the symptoms in about a quarter of an hour. He complained of numbness of the legs for two days after the accident. In five instances the anæsthesia was incomplete. Retention of urine was noted in 16 cases, lasting from 18 hours to eight days, and in one instance for two months. In the last-named case the patient also suffered from obstinate constipation which was only overcome 40 days after the operation. Dysuria was complained of five times and lasted for from 24 hours to 10 days. In one instance there was anuria for 24 hours following the injection of ten centigrammes of stovaine for an operation on hæmorrhoids.

The duration of the anæsthesia was from 10 to 100 minutes. This is usually proportional to the amount injected but not invariably so, and in some cases the injection of only 5 centigrammes was followed by prolonged anæsthesia. Perfect anæsthesia in alcoholic and nervous subjects cannot be relied upon with a less dose than 10 centigrammes.

In 11 cases slight headache was complained of and in seven it was severe. Vomiting was only noted on eight occasions *during* the operation and six times *after* the operation, either later in the day or on the following day. Rachialgia was complained of once and slight rise of temperature 12 times.

On the whole, the advantages appear to be in favour of spinal stovainisation and I may conclude: 1. That spinal stovainisation is an excellent mode of inducing anæsthesia which may be employed without danger from 15 years until an advanced age. 2. The dose of stovaine is from 5 to 10 centigrammes; this affords good anæsthesia which may last one and a half hours. 3. The constitutional disturbances are slight and never interfere with the performance of the surgeon's duties and they seem to be less frequent with stovaine than with cocaine.

The only serious drawback is the comparative frequency of urinary retention (44 out of 146 cases), lasting from one to several days. This drawback, which only exceptionally occurs when cocaine is employed, may not improbably lead me ultimately to give the preference to cocaine in the absence of the contra-indications mentioned above.

Algiers.

Clinical Notes:

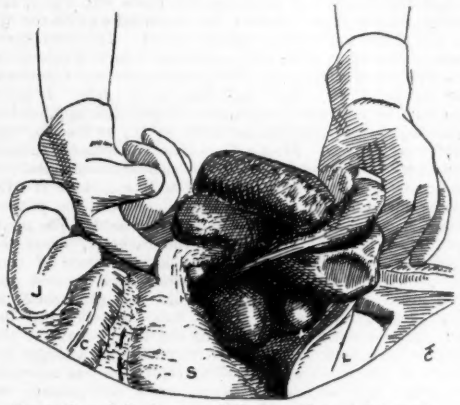
MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTE ON A CASE OF HERNIA THROUGH THE FORAMEN OF WINSLOW.

BY T. CARWARDINE, M.S. LOND., F.R.C.S. ENG.,
SURGEON TO THE ROYAL INFIRMARY, BRISTOL.

HERNIA through the foramen of Winslow is so rare that the accompanying details of a case may be of interest. An engineer, aged 44 years, whilst using the telephone was suddenly seized with severe colicky pains which made him double up. He was not at first sick but had slight nausea, and the pain continued on and off afterwards and prevented sleep. On the next morning he was sick several times; on the morning of admission, two days after the onset, he brought up black vomit, so resembling ink in character and smell as to cause inquiries to be made as to whether any ink had been added to the vomit. The patient was dusky, with cold extremities; the pulse was feeble and 124; the temperature was 97° F. The abdomen was distended but not tense except in the epigastrium where there were resistance and impairment of resonance corresponding with the position of the lesser sac of peritoneum. Constipation had been absolute for the last 24 hours.

An immediate operation was performed. The patient was almost pulseless. The bowel, black and lustreless, was discovered on tearing through the gastro-hepatic omentum. A portion of the bowel was reduced, but an uncertain vascular band seemed to prevent reduction of the remainder; and as the patient's condition was bad drainage-tubes were put into the involved gut, the patient dying three hours afterwards.



Hernia through the foramen of Winslow. (From a photograph by Professor I. Walker Hall.) S, Stomach. L, Liver. C, Transverse colon. J, Jejunum.

[Professor I. Walker Hall kindly furnished the following notes of the post-mortem examination: "At the autopsy it appeared that about 2½ feet of the lower end of the ileum were present in the lesser sac. The entering portion had passed over the ascending and right part of the transverse colon, and then into the lesser sac. From the point of entry the lower part of the ileum dragged on the ileo-cæcal valve, the mesentery being twisted so as to form a distinct, sharp edge, simulating a band containing blood-vessels."

The illustration was drawn from a photograph kindly furnished by Professor Walker Hall.

Clifton.

NOTES ON A CASE OF ACUTE GOITRE.

BY SIDNEY J. O. DICKINS, M.D. BRUX., M.R.C.S. ENG., L.R.C.P. LOND.

THE patient was a girl, aged 16 years. Her mother was dead but her father was alive and well. She had one brother alive who was healthy, but her three sisters were goitrous, one subsequently coming for treatment and recovering in three weeks, after taking syrup of iodide of iron and iodide of potassium and painting the gland with tincture of iodine. The patient, who was a fairly healthy looking girl, appeared to be well nourished but was a little anæmic, and she had a simple parenchymatous goitre. There had been no catamenia and slight exophthalmos was present. She had walked two miles to the surgery. She complained of difficulty in swallowing and in breathing. The tonsils were slightly inflamed. The left lobe of the thyroid was of about the size of a duck's egg and it extended behind the trachea, and was pressed down firmly upon the sternum during the act of swallowing and during inspiration. The gland was rather hard and could not be separated from the trachea. The patient was given half a drachm of syrup of iodide of iron and three grains of iodide of potassium three times a day, the gland being painted every night and morning with tincture of iodine. I was called up early on the following morning to see the patient who experienced considerable difficulty in breathing and in swallowing. There was an increase of stridor and the breathing was most comfortable when the patient was sitting up in a chair. There was no elevation of temperature and the pulse rate was 60 and of fair volume and tension. I ordered inhalations of steam, hot fomentations to be applied to the throat, and gave a gargle of chlorate of potassium and carbolic acid. The patient was more comfortable during the day. I was called up again on the next night, the messenger expressing the opinion that the patient was dying. I took with me

instruments for tracheotomy and several large catheters. Upon arrival I found the patient propped up in a sitting posture in bed. Her face was dusky and there were greatly increased stridor and dyspnœa with intercostal recession during inspiration and she was losing consciousness. I injected five minims of solution of strychnine, opened the mouth and separated the teeth with a gag, and guiding with a finger passed a No. 10 catheter (with the eye cut off) down the trachea several inches. This was immediately followed by respiratory relief and return of consciousness and loss of duskiness. The temperature was subnormal and the pulse very slow and was hardly felt. I again injected five minims of solution of strychnine, applied hot fomentations and mustard poultice to the præcordia, and sent for my partner. After a short time the catheter became blocked with mucus and respiration became embarrassed; it was necessary to remove the catheter and to replace it with a larger one, a No. 12; in the short time taken the patient became unconscious and the respiration ceased. The lungs were inflated by blowing down the catheter, when the respiration recommenced as well as partial return of consciousness. By this time my partner had arrived and we decided that tracheotomy should be performed at once, the high operation, and a tube passed down beyond the obstruction, as owing to the turgid state of the vessels of the neck it would be very risky to attempt the division of the isthmus until after respiration was restored. The father and relatives, however, could not possibly be persuaded to allow anything in the way of an operation, notwithstanding the desperate urgency of the case, although several attempts were made to induce them. The patient was again showing signs of increased difficulty in breathing on account of the accumulation of mucus in the catheter, and becoming much worse strychnine was again injected and artificial respiration was resorted to. The father was once more appealed to and after some delay his consent was given to operate.

The patient was now quite unconscious. I immediately performed tracheotomy, quickly removed the catheter from the mouth, and inserted a tracheotomy tube in the trachea, passing through it a No. 14 catheter. The patient had now ceased to breathe and the lungs were inflated several times by blowing down the catheter and artificial respiration was continued for some time, but unfortunately without any response; the heart now ceased beating. After some little time the tube was removed and the wound and trachea were carefully examined; the obstruction was situated opposite and below the isthmus. There was no sign of diphtheritic membrane.

In this sad case two things might well be considered. First, did the iodide of potassium and the syrup of iodide of iron cause contraction of the gland so as to increase the pressure upon the trachea and increase the irritation of the recurrent laryngeal nerve? I hardly think so as I have successfully treated several other cases of simple goitre in the same manner, as it is very common in this part of Sussex. Secondly, the fact that the heart was still to be heard beating, although very slowly (the pulse at the wrist was imperceptible), led me to hope that there might have been some response after the tube was inserted and the lungs inflated and artificial respiration resorted to for some time. But the gradually progressing slowness of the pulse noted from the first appears to point to cardio-inhibitory action being the real cause of death, which might have been relieved by division of the isthmus in time, and perhaps should have been done at once, after the tube had been introduced. Most unfortunately, the patient was practically moribund before permission to operate was obtained.

As these cases are rare and there is very little literature on the subject it would be instructive to hear the experience of others.

Cowfold, Sussex.

HOSPITAL SUNDAY AT EXETER.—Oct. 18th, St. Luke's Day, was celebrated as Hospital Sunday at Exeter Cathedral, when collections were made for the Royal Devon and Exeter Hospital. The committee, staff, and governors of that institution met the mayor and other representatives of civic bodies at the Guildhall and walked in procession to the cathedral to attend the afternoon service.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION.

Malformation of the Urethra in the Fœtus as a Cause of Dystocia.—Uterine Fibroid showing Peritheliomatous Changes.

A MEETING of this section was held on Oct. 8th, Dr. HERBERT R. SPENCER, the President, being in the chair.

Dr. JOHN EVAN SPICER read a paper on Malformation of the Urethra in the Fœtus as a Cause of Dystocia, with some considerations on secretion of urine in the fœtus. Photographs and drawings of a six months' fœtus delivered by Dr. Spicer were shown and the clinical history was given. This fœtus was found to have imperforate urethra and enormous dilatation and hypertrophy of the bladder. Diagnosis and treatment of such cases were reviewed in the light of about 70 other cases collected from the literature of the last 100 years. After a short summary of an exhaustive dissection of the fœtus Dr. Spicer proceeded to discuss the results of imperforate urethra in the fœtus and said that in itself the atresia in no way interfered with the general growth in utero, nor did it of necessity create other complications in utero which rendered the life of the newly born infant impossible. It became dangerous in utero only in the presence of a large secretion of fluid by the fœtal kidney, and such secretion he believed to be pathological. The fœtal kidney normally allowed the filtration of a small quantity of watery fluid but the amount was insignificant. The kidney was not employed as an excretory organ in utero unless a breakdown occurred—partial or complete—in the normal mechanism, by which the mother performed the whole of the excretory function of her child. That mechanism depended on the integrity of the combined circulation and was amply provided for through the placenta. A physiological breakdown might be said to occur with the onset of labour, beginning perhaps some little time previously, so that children were often born with urine in the bladder. The kidney, like the other major organs, though capable of carrying on post-natal functions of a sort at an earlier date than the tenth lunar month if necessity demanded, remained in abeyance during fœtal life. The effect of accumulation of fluid in the fœtal bladder depended on the amount, the rate, and the date of secretion, and especially on the possibility of evacuation. Hypertrophy and dilatation of the bladder wall could only arise where there was an actual or virtual means of exit for the contained fluid.—The PRESIDENT said that without further consideration he did not feel inclined to give up the view which he had long held, that the fœtus normally secreted urine and passed it into the liquor amnii during pregnancy. He had met with at least half-a-dozen cases of stenosis of the ureters in still-born children in which the ureters were distended with urine above the obstruction; in one case the distended ureter gave rise to dystocia. When the kidneys were absent the liquor amnii had been observed to be very scanty. With regard to the statement that the fœtal secretions remained in abeyance till birth, it was certainly not true of the vaginal or uterine secretions, for he had found the vagina and body of the uterus greatly distended when the outflow of mucus was obstructed by stenosis or by tumours.—Mr. ALBAN H. G. DORAN observed that quite recently a case of oligohydramnion had been reported where both kidneys were absent in the fœtus and the bladder was empty. The suprarenal bodies were hypertrophied. The absence of the kidneys was held to support the theory that the liquor amnii was mainly supplied by the fœtus but Mr. Doran doubted if Dr. Spicer or any other competent obstetrician would be convinced on the evidence of a single case.—Dr. W. S. A. GRIFFITH said that the records of these cases showed that imperforate urethra was not necessarily followed by distension of the fœtal bladder and he was prepared to accept Dr. Spicer's view that interference with the normal secretory apparatus of the fœtus through the placenta was the cause of renal activity before birth and that this activity during intra-uterine life was therefore pathological. The class of cases which he believed Dr. Spicer had not referred to in his paper was that of

distension of the fœtal bladder without stenosis of the urethra and he pointed out that although the view that a fœtus could empty its bladder into the closed amniotic sac was commonly held, no one had brought forward any evidence that this was possible, and it appeared to be very unlikely, although the cases where great hypertrophy of the bladder wall existed, as reported by Dr. Spicer, seem to show that in certain circumstances it might be possible.

Mr. DORAN and Dr. CUTHBERT LOCKYER communicated a paper on two cases of Uterine Fibroid showing Peritheliomatous Changes. The first patient was a 5-para, aged 49 years. A cystic uterine fibroid over 14 pounds in weight was removed by supravaginal hysterectomy, with an ovary the seat of fibroma. The opposite Fallopian tube and ovary were not removed. The solid part of the uterine tumour showed on microscopical examination all the characters of malignant perithelioma. Four and a half years after operation the patient had become very corpulent and there was no evidence of recurrence. The second patient was a 2-para, aged 36 years. A cystic uterine fibroid 2½ pounds in weight, invading the left broad ligament and sigmoid mesocolon, was removed by supravaginal hysterectomy, as total removal of the uterus appeared impracticable. There were marked changes in the left Fallopian tube and ovary and deposit in the parametrium of doubtful nature. The uterine tumour and the growths in the left tube, ovary, and parametrium showed on microscopic examination all the characters of malignant perithelioma. Speedy recurrence was expected, yet two years and seven months after the operation the patient was living and in good health. The stump of the cervix had become very small and the deposit in the left parametrium had disappeared. These cases showed the extreme importance of careful observation of all patients on whom hysterectomy for the removal of fibroid tumours had been performed.

THERAPEUTICAL AND PHARMACOLOGICAL SECTION.

The British Pharmacopœia: Its Scope and Object.

THE first meeting of the session of this section was held on Oct. 6th, Dr. T. E. BURTON BROWN, the President, being in the chair.

Dr. NESTOR TIRARD read an address on the British Pharmacopœia: Its Scope and Object. After briefly mentioning some of the criticisms upon the present Pharmacopœia and indicating that in many instances they betrayed a lack of appreciation of its scope and object, Dr. Tirard quoted from the Medical Act of 1858 the terms under which the General Medical Council is directed to prepare the Pharmacopœia. In the Medical Act the original scope and object are accurately defined, but many factors, besides the changes of therapeutic practice, have served to widen the scope. In 1898 by some modifications of strength of galenical preparations greater freedom of prescribing was encouraged and the work of students and of medical men was diminished. Since that date the Indian and Colonial Addendum provided for the requirements of those practising in India and the colonies, drugs of local reputation and modifications requisite owing to climatic conditions being introduced. Further changes would be necessary to secure greater uniformity in the pharmacopœias of different nations and reference was made to the international agreement which had been signed with this object. Turning next to the steps which were being taken in view of a forthcoming new issue of the Pharmacopœia, Dr. Tirard indicated that great progress had already been made with many points involving prolonged researches; these had been undertaken very shortly after the publication of 1898. The Pharmaceutical Societies of Great Britain and of Ireland had been invited to appoint representatives to confer with members of the Pharmacopœia Committee of the General Medical Council, and numerous subjects requiring investigation had been submitted to various experts in pharmacy and pharmaceutical chemistry. Particular reference was made to the researches made by Professor Greenish on solubilities and ash yields, and to the report by Professor Dunstan on the best methods of testing for arsenic and the limits of that impurity in medicinal substances. Mention was made of the steps taken to ascertain what omissions, additions, and alterations in the Pharmacopœia were desired by medical men and by pharmacists, and of the reports received from the different medical authorities, from the Therapeutic Committee of the British Medical Association, from a collation of recent prescriptions, and from a committee of wholesale druggists. While the details of most of these were at present confidential, the report of the Therapeutic Committee indicated some points which might call for discussion. Mention was made of the suggested elimination of all substances devoid of action, which could be determined by physiological experiment or by therapeutic observation. The difficulties likely to be entailed by the introduction of sera or of the physiological standardisation of drugs were also referred to, since these appeared to involve the creation of special State laboratories and the substitution of an official guarantee in place of personal responsibility. In conclusion, Dr. Tirard said that in view of the number and diversity of the suggestions received, it would be impossible to act upon them all, but that he hoped the new Pharmacopœia would show that much had been done by good intentions and by mutual concessions.

Dr. C. O. HAWTHORNE pointed out the danger of regarding the Pharmacopœia as an official treatise upon drugs. It was no part of the duties of the Pharmacopœia to recommend particular drugs, or particular combinations of drugs. It was its sole duty to determine a standard of purity. That a drug was used entitled that drug to admission into the Pharmacopœia, however doubtful its merits might be. Nor should the Pharmacopœia be regarded as a text-book. It should be recognised that it was both unnecessary and impossible for a student to attempt to commit its contents to memory.

Mr. H. WIPPELL GADD referred to difficulties which had arisen in courts of law recently. It had been held that certain drugs must be dispensed in Pharmacopœial strength.

OPHTHALMOLOGICAL SOCIETY.

Dipterous Larva in the Anterior Chamber.—Six Generations of Piebalds.—Exhibition of Cases and Specimens.

A MEETING of this society was held on Oct. 15th, Mr. R. MARCUS GUNN, the President, being in the chair.

Dr. FRANK G. THOMAS and Mr. J. HERBERT PARSONS communicated a paper on a case of Dipterous Larva in the Anterior Chamber. The case was that of a male, aged two and three-quarter years, who was seen on March 18th of this year. Three and a half weeks previously the left eye was noticed to be red and photophobic and the child seemed occasionally to be in pain. There was no history of injury or illness, nor any symptoms suggestive of intestinal "worms." On examination under an anæsthetic the eye showed slight ciliary injection, the cornea was clear, the anterior chamber was deepened, and the aqueous faintly turbid; the iris was discoloured and pattern-fogged and the pupil was irregular and filled with pigmented lymph. Lying on the iris was a long cylindrical body resembling a small worm, its head being in the lower and outer quadrant and its tail in the angle of the anterior chamber at the upper and inner quadrant. The body consisted of eight segments and measured 12 or 13 millimetres, was of greyish-yellow colour, and showed no movements. With a binocular loupe a fine covering of grey material could be made out enveloping it and reflected on to the iris. The tension was −1 and the eye was blind. Enucleation was performed on the same day. The eye was hardened in formol and sections were made at right angles to the foreign body. The anterior chamber contained exudate in front of the iris, tying down the cylindrical mass to it; the lens was somewhat shrunken and the vitreous was also shrunken and contained a coagulum. The retina was detached with sub-retinal coagulum. Microscopically, the cornea was found to be slightly infiltrated at the periphery. The anterior chamber was deep and contained homogeneous coagulum with multitudes of leucocytes. The angles were widely open and the region of the canal of Schlemm was densely packed with leucocytes. Lying on the surface of the iris was a circular body bounded by hyaline membrane, which was clearly an animal parasite. The iris, ciliary body, and retina were densely infiltrated with leucocytes. The lens was distorted, showing cataractous changes, and was covered by a fibrinous coagulum, the latter being also seen covering the ciliary body. The choroid was *in situ* and was

practically normal. One section showed the head very beautifully and this, with others, was submitted to Mr. A. E. Shipley who thought that the parasite was the larva of either the blow-fly or of sarcophaga carnaria or sarcophaga magnifica. The ova of the blow-fly, or the larvæ of sarcophagidæ, were sometimes deposited in the nasal passages and other channels leading outward in man, and also on the conjunctiva in purulent cases. It was suggested that the larva might work its way from the conjunctival sac directly through the thin sclerotic of a child into the interior of the eye, or if deposited in the nostril might find its way by the nasal duct to the lacrymal artery and thence into the eye by way of the central retinal artery, or of one of the ciliary arteries. The possibility of this larva being that of hypoderma boris, of which there were two recorded cases in man and one in the horse, must not be overlooked, since the larva of this fly was of necessity parasitic in mammalia.—A discussion followed.

Mr. N. BISHOP HARMAN read a paper entitled "Six Generations of Piebalds." He showed a chart of the pedigree of a family in which there was a striking and continuous inheritance of certain skin and hair markings. Some of the members of the family were shown at the meeting. The features were: a white forelock, a white patch of skin spreading from beneath this lock of white hair down the centre of the forehead, and in some cases patches of white skin about the trunk or legs. The white tissues were appreciably more delicate than the normal skin and hair. The colour of the ordinary hair ranged from a light brown to a deep brown, almost black. There were no other abnormalities. The connexions of this family had been ascertained for six generations: of these, four were living. The generations comprised 34 childships and 138 individuals. Of the childships, nine showed the inheritance in direct descent. Mr. Harman considered the anomaly to be in the nature of a partial albinism. He discussed the nature of this family history in relation to the inheritance of disease by one or other sex and to the law of inheritance as propounded by Mendel.

Cases and specimens were shown by Dr. A. MAITLAND RAMSAY, Mr. SYDNEY STEPHENSON, Mr. J. B. LAWFORD, Dr. A. OGILVY, Mr. A. C. HUDSON, and Mr. C. WRAY.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

Cerebro-spinal Meningitis in the Northern Territories of the Gold Coast.

A MEETING of this society was held on Oct. 16th, Sir PATRICK MANSON, the President, being in the chair.

Dr. A. E. HORN read a paper on an Investigation of Cerebro-spinal Meningitis in the Northern Territories of the Gold Coast. He said that serious outbreaks of cerebro-spinal meningitis had occurred in West Africa at intervals during the last 50 years. After giving the history of the present epidemic, which started about the end of October, 1907, Dr. Horn pointed out that the bacteriological characteristics agreed almost entirely with the main characteristics of Weichselbaum's diplococcus intracellularis meningitidis, otherwise known as micrococcus meningitidis cerebro-spinalis, or more shortly as the meningococcus, which had been shown to be the cause of the recent epidemics in Ireland, Scotland, and the continent, and to be the cause of epidemic cerebro-spinal meningitis in West Africa. There were other properties of the meningococcus of Weichselbaum which were of minor importance to the bacteriologist but of great importance in dealing with the disease which it produced; for instance, its vitality, its power of resisting desiccation, its pathogenicity on animals, its power of agglutinating with the serum of persons suffering from cerebro-spinal meningitis, its resistance to disinfectants, its methods of transference from one person to another, its power of producing immunity—all of which had been, and were still being, investigated but about which there was still considerable doubt. Experiments tended to show that the vitality of the meningococcus was not great; that it was easily destroyed by a comparatively low temperature and by desiccation, as cultures spread on cloth and dried at the ordinary temperature in daylight (not in direct sunlight) for 24 hours failed to survive. It had been practically proved by investigators in the epidemics of Europe that the meningococcus lived and was transported in the mucus of the naso-pharynx of "contacts," or persons who had been in close association with the disease, and the germ had occasionally been recovered from such sites. In regard to treatment, Dr. Horn said that the use of drugs was practically confined to the alleviation of symptoms, and he could not discover that any drug had any effect on the course of the disease. An early calomel purge and a counter-irritation in the form of liquor iodi or liquor epispasticus over the cervical spine gave some relief to the headache; cardiac tonics and stimulants were advisable early, and phenacetin and caffeine were of some temporary use if the temperature was unduly high. Alteratives, such as mercury and potassium iodide, were perfectly useless and the only drug which gave any considerable relief was opium in the form of liquor morphinæ or chlorodyne. Spinal puncture in the lumbar region and the removal of as much spinal fluid as would flow away of itself without aspiration probably relieved cerebral pressure and certainly relieved symptoms for a time in some cases. The steps of this small operation need not be described, he thought, but the needle used should be about 3½ inches long for comfortable use on an adult and about 2½ inches for a small child, and they should be of good calibre. He had usually found that the needle penetrated the spinal canal at a depth of about 2½ inches in the adult and about 1–1½ inches in the infant, but that naturally depended on the muscular development; fluid generally flowed freely as soon as the needle entered the canal but should it not do so a stylet might be passed down the needle to clear it of any possible clot; it was frequently clear and limpid in severe cases of the disease. Anti-meningitis serums had not been tried on any cases in West Africa; their preparation and use required the utmost care and skill and conditions of surgical cleanliness which were at present unattainable so far from the coast as the infected districts of the Northern Territories. In Europe at least three separate kinds of such serum had been tried and discarded as of no avail, but recently a serum had been prepared by Flexner and Jobling of the Rockefeller Institute for Medical Research, New York, which had been tried in the Belfast epidemic apparently with good results, the mortality being reduced from 72 per cent. to about 25 per cent. Judgment as to its proper value must be withheld until further results were known, but it was possible that a serum of this nature might be of considerable value in West Africa in any future epidemic if it could possibly withstand the journey and climate. The diagnosis was usually clear but might be doubtful in subacute or chronic forms and in atypical cases. Constant headache, usually occipital, some stiffness of the neck with possibly very slight retraction of the head and tendency to orthotonos, and pain or hyperæsthesia over the spine were usually found. Kernig's sign was of great importance and pathognomonic of meningitis, but he had seen undoubted cases in which it had been very slightly marked or absent. The knee-jerk was frequently difficult to obtain in natives, but if exaggerated in one or both legs was worthy of consideration in conjunction with other symptoms as confirmative evidence. Ocular symptoms, such as ptosis or momentary spasmodic squint, should be looked for. Spinal puncture and the recognition of the meningococcus would settle the diagnosis. The history of the case and the presence of others with more marked symptoms would probably help, especially in such cases as infantile pneumonias. The symptoms of the malignant form were very like those of siriasis or sunstroke, but apart from the fact that these cases occurred mostly before the hottest part of the year (March to April), the dry climate of the dry season, the comparatively open country about 500 miles from the coast line, and the altitude (about 1000 feet above sea level) rendered it unlikely that sunstroke was the cause, while the presence of cerebro-spinal meningitis in other forms left little doubt that the symptoms were due to the latter. The steps taken to limit so far as possible the spread of the epidemic were:—1. Notification by the chiefs of the villages to the nearest medical officer of all cases of sudden death and of increase in the rate of mortality among their people. 2. Isolation hospitals, temporary or permanent, were erected in stations in the infected districts, in suitable places, roughly

south-west of the European settlement, that was to leeward having regard to the prevailing direction of the dry season wind, and about 400 yards away. So far as could be done, all cases of meningitis were isolated as early as possible, but it was a very unpopular measure with the natives and a great difficulty was the nursing and feeding of patients as there were no trained nurses or dressers in the station. Disinfection of the hospital was sufficiently easily and completely performed at the end of the epidemic by firing the grass roof which fell into the mud building. Isolation was preached to the chiefs and headmen of the infected villages, and in one or two cases they were prevailed upon to build an outlying grass hut for the reception of patients. But the objection raised, with some reason, was that the patients so isolated ran risk of attack at night from wild beasts; generally the utmost that could be done was to collect the sick together in one compound, or one part of a compound, from which the younger people were excluded so far as possible. The probable methods of spread of the epidemic were pointed out and the rudiments of sanitation instilled into their primitive minds. 3. Disinfection of infected houses with burning sulphur was carried out where possible. 4. Examination of suspicious cases of sickness among caravans. 5. Funeral customs, with the consequent intervisiting, were forbidden or restrained so far as possible. 6. House-to-house visiting on any large scale could not possibly be carried out on account of the large areas covered by the separate villages, but, so far as could be done, all cases of sickness were examined. 7. The public market was closed where considered necessary, as in Tumu, having regard to the people from infected villages who frequented it. 8. Station carriers and labourers were not taken from villages where sickness was present. 9. Zongas or caravanserais had been erected in many cases by the district commissioners to serve as a halting place for travelling caravans, thus avoiding the necessity of traders sleeping in native villages. 10. Dr. Horn found it advisable at the time of the Chief Commissioner's tour of the Northern Territories to suggest that owing to the prevalence of the epidemic at that time in the Lorha and Tumu districts it would be inadvisable for the chiefs or headmen of the villages to travel to these stations for the purpose of meeting the Chief Commissioner as it would in many cases entail their sleeping at infected villages on the road and so possibly spread the infection. That suggestion was acted upon and any large congregation of chiefs at Lorha and Tumu was avoided. 11. He also suggested to the Chief Commissioner while at Lorha that it would be unwise while the epidemic prevailed in the dry season to allow any gang of natives from the infected districts to be taken down country for work at the mines in Ashanti and the Colony owing to the grave risk of introducing the infection to those parts. The Chief Commissioner agreed with the suggestion and no men were sent. Dr. Horn wished also to lay stress on the fact that severe epidemics of cerebro-spinal meningitis, such as had occurred in West Africa for certainly the last three years, could not be considered apart from the grave epidemics of the same disease which had occurred so recently in many parts of Europe, including the United Kingdom. Amongst the civilised peoples of Europe every step could be taken to arrest the progress of the disease, but it must be admitted that it was at least possible that the disease in West Africa, similar as it was in cause and effect, might act as a "feeder" to that in Europe and so tend to prolong its presence there. There was direct or indirect communication by means of caravans which might convey the infection between West Africa and many parts of North Africa from which the disease might be carried by ships to the seaports of Europe, where it was frequently found the epidemic started. Whether the infection was also air-borne had not been determined, but the direction of its spread in West Africa—roughly that of the prevailing wind—suggested that it might be to some extent, although its main mode of conveyance was by "contacts" as described. It was therefore, he submitted, of the utmost importance that every precaution possible should be adopted to arrest the disease in West Africa so far as could be done. Dr. Horn had described the steps taken for that purpose during the present epidemic and he suggested that in any future outbreak they should be rigorously enforced, together with any other means which might appear advisable, such, for instance, as nasal disinfection, a measure which was, however, entirely impracticable at present among natives.

A discussion followed, which was taken part in by Lieutenant-Colonel A. E. WATHERSTON, Dr. F. M. SANDWITH, Dr. G. C. LOW, and the PRESIDENT, after which Dr. HORN briefly replied.

NORTH LONDON MEDICAL AND CHIRURGICAL SOCIETY.

A MEETING of this society was held on Oct. 8th, Mr. G. B. MOWER WHITE, the President, being in the chair.

The Work of the Research Defence Society.

Mr. STEPHEN PAGET read a paper on the Work of the Research Defence Society, in the course of which he said: Many of us remember the first Royal Commission appointed in 1875 to inquire into experiments on animals. The contrast is very significant between the evidence given before that Commission and the evidence before the present Royal Commission. Truly, as we turn from the one set of Blue-books to the other, we seem almost to pass into a new world. In 1875 the evidence was mainly physiological, and even in physiology there were no such triumphs to be declared as the present Royal Commission has lately heard with its own ears. As for pathology, next to nothing was said about pathology, and there was nothing said about bacteriology—nothing, at any rate, except one or two vague and splendid prophecies. Especially, that magnificent passage in Sir John Simon's evidence touching the nature of anthrax:—

> We are going through a progressive work which has many stages, and are now getting more precise knowledge of the contagium. By these experiments on sheep it has been made quite clear that the contagium of sheep-pox is something of which the habits can be studied, as the habits of a fern or a moss can be studied, and we look forward to opportunities of thus studying the contagium outside the body which it infects. This is not a thing to be done in a day or perhaps in ten years, but must extend over a long period of time. Dr. Klein's present paper represents one very important stage of a vast special study. He gives the identification of the contagium as something which he has studied to the end in the infected body, and which can now in a future stage be studied outside the body.

But, of course, a Royal Commission cannot live on prophecies. The evidence before the 1875 Commission is in great part retrospective and historical. The witnesses proved, past all possibility of doubt, the value and the necessity of experiments on animals, and with that proof the Commissioners were content. They sat for six months only, they examined 53 witnesses and no more, and the total number of questions and answers attains the comparatively moderate figure of 6551. The Act founded on their recommendations was passed in 1876. If prophecy be out of place before a Royal Commission it is even more out of place in an Act of Parliament. Therefore ever since 1876 we have seen the Act strained and pulled this way and that, so that it may somehow be applied to the growing needs of science. For example, there is even now no special certificate for inoculations, yet inoculations, with a few experiments of the nature of inoculations, are at the present time 96·5 per cent. of all experiments on animals. Thus the public are left to believe that severe operations are performed on animals without anæsthesia, and we all know what use is made of this defect in the Act by the opponents of these experiments. In 1882, six years after the passing of the Act, some of the chief members of our profession founded the Association for the Advancement of Medicine by Research; among them were Lord Lister, Sir James Paget, Sir William Gull, Sir William Bowman, Sir Richard Quain, and Sir Andrew Clark. The purpose of this association was "to bring the legitimate influence of the medical profession more effectively to bear on the promotion of those exact researches in physiology, pathology, and therapeutics which are essential to the sound progress of the healing art." The council of this association made an offer to the Home Office "to render, within their province, such aid or advice as would tend to facilitate the administrations of the statute, without trenching upon the absolute discretion committed to the Home Secretary." This offer was immediately accepted by Sir William Harcourt, then Home Secretary, and in December, 1882, it was decided that no application under the Act should be entertained by the Home Office except on the recommendation of the council of this association. From that time till now, for more than a quarter of a century, this association has been the constant adviser of the Home Office. But we need not stay over these old facts about science and politics more than 30 years ago. The Act had hardly received the Royal Assent

before it began to be ill adapted for its purpose. It became law in 1876, and it was in 1878 that Pasteur took part in that memorable discussion in the French Academy of Medicine on puerperal fever. Henceforward, of course, began the rapid increase of the number of experiments on animals which has risen continually ever since. In 1875 the evidence before the Royal Commission had mostly been technical, abstruse, occupied mainly with physiology, and hardly intelligible to the general reader. In 1906 the whole world was interested in bacteriology; public imagination had been caught and fired by the work of Pasteur and of Lister and of Koch. The discovery of diphtheria antitoxin and of thyroid extract, the mapping out of the motor areas of the brain, the protection of sheep and cattle against epidemic diseases, appealed to everybody. Then, above all, came the news of what was being done in tropical medicine. Men were taking their lives in their hands, and some of them had lost their lives, in India, on the Gold Coast, or in the Uganda Protectorate. Expedition after expedition was going out from Liverpool, more romantic than any adventurer in the days of Elizabeth, and infinitely more beneficent. How they fought the plague in India, how they stamped out the yellow fever in Havana, the malaria wherever the malaria was, and what they did for Texas cattle fever and for the tsetse fly disease—all these mighty works were read and believed. In brief, the works of science had come down at last, out of the laboratories, into the national life and the national conscience; and every man of science who had watched these wonders in the making, or had something to do with the making of them said, "Now, at last, this country is beginning to understand what it owes to experiments on animals. And we will use this Royal Commission for the education of the public; they shall have chapter and verse for everything; they shall have, for the first time in their lives, a careful and complete history of the Thirty Years War against disease." In brief, the men of science welcomed the present Commission with gladness because it was so exactly the very thing that they wanted. They had so much to tell the Commission, so many things that they wished to get into the public mind, that they had to be very careful to avoid the overlapping of evidence and all waste of precious time; so, on the appointment of a Commission a meeting was held of representatives of some 60 or 70 scientific or medical societies, and from these representatives a small executive committee was formed, with Professor Starling as chairman. It was the business of this committee to divide the whole history of modern experiments on animals, giving each witness a part of it; to be in recognised correspondence with the Royal Commission; and to watch and record the whole course of the inquiry. We owe it to Professor Starling's committee that the public possesses, in five large Blue-books, a most admirable history of all experimental medicine in this country back to the days of the 1875 Commission. Then when the present Commission, having sat from October, 1906, to March, 1908, and heard no less than 21,761 questions and answers, decided that they did not desire any further evidence, it seemed a pity that Professor Starling's committee should come to an end. There was need, so it seemed, for some association or society which should permanently remind the public of these facts about experiments on animals and should steadily oppose the antivivisection societies. Such a society might, it seemed, do good work without interfering in any way with the work of the Association for the Advancement of Medicine by Research. That association is privileged to advise the Home Office, and by virtue of that privilege is not a public or militant body. Therefore, at a meeting of Professor Starling's committee in January of the present year the Research Defence Society was founded. It began with seven members, which was a lucky number. It has now, October 8th, 1472 members, of whom 158 are ladies.

[Mr. Paget continued by describing the aims of the Research Defence Society which he said was first and foremost a society for telling the truth about a very important set of facts which have been saturated with falsehood. It existed to disseminate practical advice amongst the people in the interests of the national health, but especially to combat the mis-statements and slanders of the many antivivisection societies which had now for 30 years been fighting so hard not only against science but among themselves, and had received not much less than £80,000 and had accomplished next to nothing. He continued:] Against these societies, we now have a society which may truly be called representative of the collective good feeling, philanthropy, scientific mind, and passionate respect for plain facts which are no less admirable than our care for animals, and are even more necessary for the health and the strength of the national conscience. Thus, at last, we come to the work of the Research Defence Society. Its work is not only to defend the practice of research but to defend the honour of research. Our men of science have been grossly and most impudently insulted, and we are not going to stand that any longer. The British public is sick to death of hearing Pasteur called a torturer and Lister called a fool; sick to death of the platform facts, the placards, the public meetings, and quarrelling, and the incessant begging of these antivivisection societies. They have gone too far, they have talked too much, and at last they have defeated their own ends and everybody has got tired of them. The work of the Research Defence Society, therefore, is mostly, if I may dare to use the word, apostolic. It is willing always to send a representative to any straightforward debate, and even to meet at such a debate the representative of an antivivisection society. Only it draws the line, very properly, at accepting challenges from antivivisection societies or at arranging debates with them. It is also willing to arrange with any literary society or institute for the giving of a lecture or address which would be open to fair discussion. But its more immediate daily business is the sending to all applicants of the pamphlets and the leaflets already issued. Bound copies of these pamphlets have lately been sent to all the chief public or educational libraries in London and in our great provincial towns. But, of course, it is nothing to send a book to a public library in a place like Manchester or Bournemouth. What is everything is a branch society in every great town in England, spreading in that town a more general knowledge of the facts about experiments on animals. Finally, as it is the privilege of a new society to be ambitious and to look far afield for the extension of its work, so the Research Defence Society has been in communication with some of the most eminent American physicians and surgeons; and steps have now been taken in regard to the formation of a Research Defence Society in the United States.

HARVEIAN SOCIETY OF LONDON.—A meeting of this society was held on Oct. 15th, Mr. D'Arcy Power, the President, being in the chair.—The proceedings commenced with a discussion on two proposed alterations in the rules of the society: 1. It was proposed "that smoking be allowed at ordinary meetings." This motion on being put to the vote was not carried, a majority of members voting against the suggested change. 2. It was proposed "that gentlemen who possess a dental diploma of the United Kingdom and who are on the Dental Register shall be eligible for membership of the society." This motion was carried and the rules of the society will be amended accordingly.—The President then showed a case in which he had Removed the Spleen by Operation, the spleen having been ruptured by an abdominal injury. The patient had made a complete recovery.—Dr. Sidney P. Phillips showed a case of Left Hemiplegia in a boy. There were complete optic atrophy and choroiditis with blindness. There was marked athetosis on the left side and defective articulation was present. The condition was the result of cerebral thrombosis associated with congenital syphilis.—Dr. Phillips also showed a case of Transverse Myelitis in a boy. The lesion was in the lower dorsal region. The patient had much improved under treatment and was now able to walk. Spastic paraplegia and incontinence were still present.—Dr. W. H. Willcox showed a case of Hæmophilia in a man, aged 26 years. The patient had been under treatment for five years. Unless calcium and magnesium salts were given from time to time the coagulability of the blood fell to below the normal and bleeding occurred. The attacks of bleeding were now less frequent and much less severe.—Dr. Willcox also showed a case of Hæmoptysis in a boy whose brother suffered from hæmophilia. The patient had apical pleurisy and also some slight pleurisy in the left axilla. It was thought that the hæmoptysis was due to pulmonary tuberculosis and not to hæmophilia.—Cases were also shown by Sir John Broadbent,

Mr. S. Maynard Smith, and Mr. C. I. Graham.—Mr. T. Crisp English showed the following specimens: (1) A Fibro-adenoma of the Breast of great size, which was removed from a patient who was five and a half months pregnant; (2) a Malignant Growth of the Prostate Gland removed by him from a patient aged 70 years; and (3) a Twisted Calcified Fibroid of the Uterus of great size, which had caused symptoms of intestinal obstruction. The tumour was removed by operation.

SOUTH-WEST LONDON MEDICAL SOCIETY.—The first meeting of the winter session of this society was held on Oct. 14th, when an address was given by Dr. L. S. McManus, the President, on General Practitioners in Relation to Each Other, to the British Medical Association, and to the General Medical Council. A brief sketch was given of the relationship of medical men to one another in the past, illustrating by examples culled from history, art, and literature, how our predecessors suffered like medical men of to-day from evils arising out of professional rivalries and jealousies and misconceptions on the part of the public; it was pointed out how the formation of societies such as the South-West London and on a larger scale of the British Medical Association had ushered in an era of greater kindly feeling and coöperation in which much good work had been done. Owing to the failure of the British Medical Association to fulfil the objects for which it had been founded, of late years it had been found necessary to revolutionise it and to place it on a broad democratic basis with many and varied functions designed for the advantage of every individual member as well as of the profession as a body. The General Medical Council was instituted for the protection of the public, and its main function, which had been adequately performed, was the supervision of the mental equipment of every student. The Council, however, lamentably failed to afford any protection to the practitioner when once qualified, a failure due to the insufficient representation of the general practitioners. In conclusion, the President urged on all practitioners the necessity of combination if the profession were to maintain its rightful position.

Reviews and Notices of Books.

Applied Physiology: A Handbook for Students of Medicine. By ROBERT HUTCHISON, M.D. Edin., F.R.C.P. Lond. London: Edward Arnold. 1908. Pp. 298. Price 7*s.* 6*d.* net.

THIS is an attempt, and a successful attempt, to apply physiology to medicine in the same way as anatomy has long been applied to surgery. It is intended to be a companion to, and not a substitute for, physiological text-books. An account of method is omitted: the chief emphasis is laid upon facts which have a direct bearing upon clinical work. There is no chapter on muscle, nerves, or the special senses. What is included is physiology as applied to metabolism (pp. 48), body heat (pp. 22), blood and hæmopoietic organs (pp. 34), heart and circulation (pp. 72), respiration (pp. 48), digestion (pp. 53), and excretion (pp. 20).

In connexion with the question of the metabolism of proteins, Chittenden's estimate of 60 grammes per day instead of 118 is mentioned and the author remarks, "it would be well for the physician to be cautious in applying these results in practice." Experience has shown the value of a liberal meat diet in tuberculosis, while the Japanese have found that a liberal meat diet given to their sailors is a prophylactic against beri-beri. A person cannot be made strong by a liberal protein diet, exercise must be taken at the same time. Massage has no appreciable influence on metabolism and is therefore in no real sense a substitute for exercise. Metabolism is treated from the quantitative point of view, expenditure and income of energy, storage of surplus energy, and then is set forth the influence of age, sex, build of the body, work and rest, season, period of day and weather, nervous system, internal secretions, and personal peculiarity on metabolism. Qualitative metabolism is then dealt with, including proteins, fats, and carbohydrates, which leads up to the consideration of diabetes and the metabolism of uric acid.

Sometimes the temperature is given in degrees Fahrenheit, sometimes in degrees Centigrade. The blood itself is considered not only as a medium of exchange and as a tissue, but also as a means of defence, and hence the importance of its antitoxic and bactericidal properties; and for this reason "hæmatology" has assumed a very important place in latter-day medicine. The term "apex beat" is retained for cardiac impulse. The nervous mechanism of the heart apparatus is carefully considered in relation to disease, while a general account of the chief facts of the circulation on which physiologists are agreed is supplemented by clinical facts. The capillary pressure is stated, on the authority of Hill, as being often above 100 millimetres of Hg. "Cold contracts the peripheral arteries and raises the blood pressure, so that the first onset of cold weather in winter is apt to be attended by a crop of apoplexies" (p. 165). The splanchnic nervous system is the "resistance box" of the circulation. Ludwig long ago pointed out the importance of the portal system in the regulation of the arterial blood pressure.

Special emphasis is laid on nose-breathing and the whole treatment of the respiratory processes is eminently scientific as well as practical. The treatment of certain conditions by inhalation of oxygen has justified itself in practice (p. 213), and the author quotes French writers on the effects of decompression in "caisson disease," when they say "payment is only made on coming out." Deep breathing is no substitute for exercise, this alone can really increase the oxidation processes in the body. The researches of Pawlow, of Cannon, and Hertz are woven into the story of the digestive processes and their practical applications are fully stated.

We feel sure that this work will prove useful not only to the student beginning his clinical work but also to the practitioner who has long since "walked the hospitals." It is written in a style at once simple and attractive which makes the assimilation of the facts both easy and effective. The salient facts of physiology find their appropriate application in the study of the phenomena of disease.

Atlas Chirurgisch-pathologischer Röntgenbilder. Mit 240 autotypischen, 105 photographischen Bildern, 66 Skizzen und erläuternden Text. (*Atlas of Radiograms of Surgical Diseases.* With 240 autotype and 105 photographic figures and 66 sketches and explanatory text.) By Dr. RUDOLF GRASHEY, Assistenzarzt der K. chirurgischen Klinik zu München. Lehmann's Medizinische Atlanten, Band vi. Munich: J. F. Lehmann. 1908. Pp. 152. Price M.22.

THE above work, as the title infers, is confined solely to the consideration of surgical diseases. It is divided into two parts. The first consists of 49 pages devoted to a short consideration of the following subjects: foreign bodies, concretions, diseases of bone, diseases of joints, deformities, tumours, pathological changes in the soft parts, dislocations, and fractures. The chapters on the location of foreign bodies and on the diseases of bone are by far the best; the others are a little disappointing, especially the scanty notice given to renal calculi.

The second part consists of numerous reproductions of typical radiograms with very full descriptions of each plate. Here there can be nothing but praise for the excellent reproductions of the prints. The difficult problem of bringing out the minute texture of the bones in book prints seems to have been solved most satisfactorily. In fact, the reproductions are as good as successful positives. In the

diagnosis of bone disease radiograms are useless unless this texture can be properly studied. Past books on the subject have usually erred in this respect and have therefore been of little use to the practitioner who is unable to study a series of radiograms first-hand. We can therefore confidently recommend this book to those who wish to study the subject of differential diagnosis of diseases of bone by means of the x rays, a subject which has so far been comparatively neglected. With a knowledge of the subject such as this book confers it is comparatively easy to say whether osteitis is tuberculous, syphilitic, or due to the other more virulent pyogenic organisms, and to differentiate inflammatory swellings from tumours of bone, a boon which no other method of examination confers with half the same certainty. We recommend it specially to those who have to deal with large numbers of obscure cases of diseases of bones and joints in the out-patient departments of the large hospitals.

The book is worth buying as the plates are accurate records of typical pathological conditions and can therefore not get out of date. Nor is modern printing likely to reproduce such plates any more accurately in the future. The plates could hardly be better done.

Essentials of Physiology for Veterinary Students. By D. NOËL PATON, M.D., B.Sc. Edin., F.R.C.P. Edin. Second edition. Profusely illustrated. London and Edinburgh: William Green and Sons. 1908. Pp. 464. Price 12*s.* net.

IN setting himself the task of writing a book on veterinary physiology Dr. Noël Paton has well earned the thanks of the veterinary community, both of students and practitioners. Realising the pressing need for a work of this nature he has brought to bear on the subject not only his knowledge as a professor of physiology but also the experience which he gained as examiner in the same subject appointed by the Royal College of Veterinary Surgeons. In this capacity he had from time to time before him the students for whose assistance he has now compiled the volume under review.

Careful reading of Dr. Paton's book conveys the impression that the author writes from the point of view of the scientific theorist. The trained veterinary practitioner whose life's work lies amongst the animals of the farm will disagree with some of the statements made. Thus we can find no mention of the fact that the horse possesses no gall-bladder. In speaking of this organ Dr. Paton would seem to give the impression that it is possessed by all animals, yet it is a fact which is of great clinical importance that the equine bile-duct has no diverticulum and consequently the bile dribbles continuously in small quantities into the bowel. We have only to consider this fact, associated as it is with small capacity of the stomach in this animal, to appreciate the necessity for feeding the horse frequently, and with small quantities each time, if we would keep it in health; recollecting, too, that it adapts itself to these inconveniences in the natural state by being a continuous feeder.

General physiology is fundamentally the same in both man and animals, and animal protoplasm is exactly the same as human. The circulatory system is the same in both, and the human nervous system only differs from the animal in being more highly developed. But in the alimentary tract we find great differences of structure and variations in the composition of the digestive juices. For the most part the author deals with this complex subject in a manner which leaves little to be desired. He states briefly the nature and comparative value of the various food-stuffs; he points out clearly the differences in value between the foods of the carnivora and the herbivora; and he describes the relation between the foods and the nature of the tract through which they pass. He demonstrates clearly in the text and by means of some excellent diagrams the anatomical peculiarities to be found in each animal. He describes the different processes through which the foods pass after being eaten, discussing their digestibility and energy value, the part which they play in the metabolic processes, and their ultimate fate in the tissues. All these matters are dealt with exhaustively yet without superfluity. Reproduction, the bugbear of the student, is rendered admirably clear and simple in the concluding pages of the work, the value of which would have been enhanced, however, if greater emphasis had been laid on the differences to be found in the placentation in the different animals.

Taking the book as a whole we feel sure that the information contained in it will be welcomed by the present-day veterinary student, and we venture to express a hope that when it comes to a third edition the wants in this direction of the veterinary practitioner may also be more fully dealt with especially in reference to the everyday occurrences which are met with in daily practice; in fact, if we may so use the term, we should like to see the book named a "clinical" veterinary physiology.

LIBRARY TABLE.

Diseases of the Genito-Urinary Organs and the Kidney. By ROBERT HOLMES GREENE, A.M., M.D., Professor of Genito-urinary Surgery, Medical Department of Fordham University; Genito-urinary Surgeon to the City and to the French Hospitals, New York City; and HARLOW BROOKS, M.D., Assistant Professor of Pathologic Anatomy, University and Bellevue Hospital Medical School; Visiting Physician to the City Hospital, New York City. With 292 illustrations. London and Philadelphia: W. B. Saunders Company. 1907. Pp. 536. Price 21*s.* net.—In this work we have for the first time, so far as we are aware, a treatise on the genito-urinary system which has been written jointly by a surgeon and by a physician. Nearly the whole of the literature of this important department of therapeutics has been written from a surgical point of view, therefore it is well sometimes to have combined with this the medical aspect of the subject. We are also pleased to see that the urinary part of the genito-urinary system has received its due share of notice, for in many works on the subject sexual disorders have usurped more attention than they deserve. A good account is given of the instruments employed in the examination of the urinary organs, and we are inclined to agree with the authors that urinary segregators will give way to ureteral catheterisation. With the latter method the results are much more certain, though it is probable that less skill and experience are required in the employment of a urinary segregator. The authors speak favourably of massage of the kidney and ureter as an aid in diagnosis of suppurative nephritis. The method was introduced by Giordano of Venice and it deserves attention, but the cases in which it is likely to be useful are probably few in number. A very brief account is given of litholapaxy and the authors are mistaken in saying that Bigelow was the inventor of the evacuator, though he should certainly have the credit of extending its use greatly. The histology of hypertrophy of the prostate has been fully investigated by the authors and their conclusions are that the condition is certainly inflammatory, and they are inclined to attribute it in most cases to a posterior urethritis, usually of gonorrhœal origin. A good description is given of the perineal operation for enlarged prostate, but the account of the suprapubic operation is inadequate. We should like to know the evidence that the authors have for saying that the ordinary radical operation for hydrocele affects the function of the testis. They say: "By removing the tunica the natural covering of the testicle is destroyed, and it would seem to follow, as a matter of course, that the adhesion with

connective tissue that would take place between the testicle and the skin, through its power of contraction, would have a bad effect upon the functional capacity of the organ." We believe this idea to be entirely imaginary. The book is fully illustrated and we may specially mention an excellent plate showing a skiagram of a patient who had a double ureter on one side. All the three ureters have been catheterised through their length with catheters giving an x-ray shadow and the result is very striking.

Gonorrhœa: Its Diagnosis and Treatment. By FREDERICK BAUMANN, Ph.D., M.D., Professor of Genito-urinary Diseases in the Reliance Medical College, and Instructor in Dermatology and Venereal Diseases in the College of Physicians and Surgeons, Chicago. With 52 illustrations in the text. London: Sidney Appleton. 1908.—Gonorrhœa is now considered to be a much more serious disease than formerly, for it is recognised that diseases of many distant structures may be among its manifestations. This work, however, deals almost entirely with gonorrhœa as it affects the lower genito-urinary passages. A brief account is given of the anatomy of the urethra but no illustration is supplied. The description of the pathology of the disease is based on the work of Oberländer and Kollmann, and it is therefore very satisfactory. The treatment of the disease is naturally of the greatest importance and this is given at great length. The author has no very high opinion of internal treatment; he says that it may be used particularly in cases in which there is a marked purulent discharge, but he adds that it is that part of the treatment which may be omitted. He considers of much greater importance the local application of germicides and he discusses the relative value of the more commonly used urethral germicides. He has a low opinion of the organic preparations of silver but his objection to them appears to be, in part at least, theoretical. In the treatment of acute gonorrhœa he considers that the best results are obtained by daily irrigation with a warm potassium permanganate or nitric acid solution in increasing strength and given with a hand syringe without the use of an injector. The first injection should consist of one or two quarts of a 1 in 10,000 or 1 in 20,000 aqueous solution at a temperature of 40° to 45° C. The account of gonorrhœal metastases is very brief. On the whole, we consider that this book is likely to be useful as an introduction to the study of gonorrhœa.

JOURNALS AND MAGAZINES.

The Edinburgh Medical Journal.—An interesting article upon osseous new growth at the elbow following backward dislocation of the bones of the forearm is contributed to the October number of this magazine by Mr. David M. Greig. The condition is of importance as accounting for some failures to produce a mobile joint after accidents of this nature which may bring discredit upon the surgeon. The author objects to the view that the ossification is to be regarded as a traumatic myositis ossificans and holds that the new bone is formed in effused blood clot. Dr. Claude B. Ker writes on the treatment of cerebro-spinal meningitis by Flexner's serum which he regards as a valuable remedy, and Dr. F. Parkes Weber raises a theoretical objection to the employment of Calmette's ophthalmic reaction in tuberculosis, in that it may set up recurring attacks of conjunctivitis due to subsequent auto-inoculations with tuberculous toxins.

The Medical Chronicle.—In the October issue of this journal Dr. Robert Ollerenshaw records some valuable investigations as to the nature and use of some of the newer hypnotic and analgesic drugs. Thus chloretone is valuable in sea-sickness and chorea, also as a preventive of post-anæsthetic vomiting, but useless as a local anæsthetic and of little value as a hypnotic; brometone is of value in some cases of epilepsy and has some hypnotic power; phenalgin is toxic and its advantages as an antipyretic are outweighed by its depressing action on the heart. Veronal is a valuable hypnotic and has the peculiar property of counteracting the unpleasant effects of morphine; bromural is also a useful and safe hypnotic; isopral acts similarly and can be administered by rubbing it into the skin. Neuronal has some power of inducing sleep but is unduly depressing. Mesotan is useful as a local application to rheumatic joints. Dr. J. Dixon Mann discusses the fallacies inherent in Fehling's test for sugar in the urine and shows that they are not serious in actual practice.

West London Medical Journal.—The October number of this journal opens with an interesting address by Colonel T. Holbein Hendley, I.M.S. Bengal (retired), upon the identity of the problems, aims, and interests of the medical man at home and abroad, with special reference to India. Dr. A. Elliott and Dr. A. E. Russell discuss some of the causes of unconsciousness and their diagnosis; and some interesting cases are recorded—two of purpura hæmorrhagica successfully treated by Dr. J. A. Coutts with antistreptococcic serum, and one of pancreatic hæmorrhage by Mr. Herbert W. Chambers.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY meeting of the Council was held on Oct. 15th, Mr. HENRY MORRIS, the President, being in the chair.

Mr. EDMUND OWEN, on behalf of the Committee on the Annual Report of the Council, submitted a draft copy of the report to be presented to the Fellows and Members at the annual meeting on Thursday, Nov. 19th. The report was approved.

Mr. Ernest Harries Walker, lately a student at Epsom College and now at St. Thomas's Hospital, was appointed the sixteenth Jenks scholar.

Sir W. Watson Cheyne was appointed a member of the committee of management in the vacancy occasioned by the retirement of Mr. Edmund Owen, to whom the thanks of the Council were given for his services on that committee.

Mr. P. Sidney Spokes was re-elected a member of the Board of Examiners in Dental Surgery.

Dr. Benjamin Moore, professor of bio-chemistry in the University of Liverpool, was elected examiner in physiology for the Second Examination of the Conjoint Examining Board in the vacancy occasioned by the death of Dr. Bertram Abrahams.

A letter was read from Mr. Henry T. Butlin, resigning his membership of the Senate of the University of London as one of the representatives of the College. A vote of thanks was given to Mr. Butlin for his services and Mr. H. H Clutton was appointed a representative of the College in his stead.

Mr. Clutton was also appointed an additional delegate on the joint committee with the Royal College of Physicians of London on the proposed combination with the University of London.

Mr. CLINTON T. DENT proposed the following motions which were carried:—

1. That steps be forthwith taken to admit women to the examinations of the Conjoint Examining Board in England and to the examination for the Diploma in Public Health.
2. That women be admitted to the examinations for the Fellowship of the Royal College of Surgeons and to the examinations for the Licence in Dental Surgery.

A committee was appointed to prepare a formula for the necessary alterations in the by-laws.

A BATH CENTENARIAN.—Miss Marianne Hensley of 4, Bloomfield-place, Bath, attained the 103rd anniversary of her birthday on Oct. 15th. The King sent a telegram of congratulation to Miss Hensley.

THE LANCET.

LONDON: SATURDAY, OCTOBER 24, 1908.

Poor-law Medical Officers.

THE terms and conditions of tenure of the members of the Poor-law medical service in England and Wales have lately been made the subjects of a carefully considered paper, read before the annual meeting of the Poor-law Medical Officers' Association of England and Wales by Dr. MAJOR GREENWOOD, its honorary secretary. The main object of the paper was avowedly to direct public attention to grievances affecting the personal interests of the officers concerned; but the author properly contends that these grievances are of such a nature as to place difficulties in the way of the complete discharge of duty by those whom they affect, and that they are therefore matters of public as well as of merely professional concern. They depend, for the most part, as we have on many occasions endeavoured to show, upon the fact that the conditions of the service have not been authoritatively reconsidered since 1847, although the intervening 60 years have been productive of many changes both in the duties to be performed and in the labour and expense incidental to performing them. It seems to have been the expectation of those who framed the regulations of 1847 that the stipends of the officers would be materially increased by fees for the surgical operations which from time to time they would be called upon to perform, and of which an official list was framed with a regulation fee attached to each operation. A few months only had then elapsed since the first operation under ether had been performed in London by Mr. LISTON, and neither the need for anæsthesia in surgery nor the enormous extension of operating which followed from it was in the least degree foreseen by anybody concerned. The operations chiefly required from parish medical officers were those for strangulated hernia and amputations; the equipment necessary for performing them was simple, and the prescribed fee might almost be regarded as remunerative when the conditions under which it became payable were considered. In the present day operations are constantly called for which have no place on the official list and for which no payment can be claimed as a matter of right, although the guardians may, if they see fit (which they seldom do), apply to the Local Government Board for permission to pay one. The operator is compelled to provide and to pay an anæsthetist at his own risk, and to provide also the costly equipment essential for the prevention of sepsis, with the ordinary result that the fee, even if any fee be paid, seldom covers more than the bare cost of the procedure, and certainly leaves no margin of profit capable of being regarded as a set-off against general insufficiency of stipend. The Local Government Board justly inclines to the opinion that it is better, as a rule, for pauper patients requiring serious operations to be removed to hospitals than to be treated in their own often miserable homes; but the justice of this view is largely dependent upon local conditions, roads, distances, facilities for conveyance, and the like, and can only be maintained by the admission of numerous exceptions to the rule. In certain cases of emergency the Poor-law medical officer must either operate or gravely imperil the life of his patient; and an operation, even when it is upon the official list, can no longer be regarded as a source of profit. In appendicitis, to take a single example from among many for which the list makes no provision, an operation may save a life which would have been lost by the intervention of a few hours and of a ten-mile journey, but the medical officer who performed it would have no legal claim for payment and could only receive a fee as a result of a special application made by the guardians to the Local Government Board.

Another grievance on Dr. GREENWOOD'S list is that of the remarkable inequalities which obtain between the rates of payment made to Poor-law medical officers in different localities. The extremes range, according to his figures, from 3*d.* a case to 20*s.*; and the most probable explanation of these discrepancies seems to be that great changes of population may have occurred in certain districts since the time when the amounts of the several stipends were fixed. Another and a more serious grievance arises from the necessity for the intervention of a relieving officer and the receipt from him of an "order" before the medical officer can claim payment from the guardians for his attendance upon a lying-in case, however urgent may have been the demand for his services. This question is already a pressing one under the operation of the Midwives Act, by which licensed women are required to send for medical assistance in certain conditions, and it will become still more pressing when that Act is completely enforced in 1910. Dr. GREENWOOD suggests, quite reasonably, that in all obstetric cases the Poor-law medical officer, and we would even add any medical man who attended in an emergency, should have a legal claim upon the guardians (or perhaps upon the local midwifery authority) for a specified fee, which the authority concerned should in proper cases be entitled to recover from the father of the child or other responsible person. But perhaps the greatest grievance of all, on which we have dwelt on former occasions and which has recently been brought into prominence by the action of the Driffield board of guardians in the case of Dr. A. T. BRAND, is that some boards regard the appointment of public vaccinator as one to be used as a counterpoise to the insufficient payment of the Poor-law medical officer, and so not only habitually confer both offices upon the same person, but, in the event of his resigning his Poor-law office, dismiss him from that of public vaccinator, in which his conduct may have been exemplary but of which he has no security of tenure. It is alleged that by means of this expedient Poor-law medical officers are induced to accept stipends which otherwise they would refuse, and there can be no doubt that this is the case in some instances. The use thus made by some guardians of the fact that the vaccination fees in their districts are considerable is obviously utterly immoral and tends to the total

defeat of the intentions of the legislature. Moreover, by a curious perversion of argument, the statement of the Poor-law medical officers that their appointments are in many cases held for the sake of the vaccination fees has been used by professional anti-vaccinationists to show that either these fees are excessive or that medical men who do not believe in vaccination are seduced by them into accepting the offices to which they are attached. The imputation of motives is a weapon which can scarcely fail to wound the hands which wield it. Mankind only impute to others motives analogous to those which they recognise as the springs of their own conduct.

Indications have not been wanting of late years that there are forces in operation at the Local Government Board which tend to look with less benevolence upon fees paid to medical men than upon those paid to the members of other callings. Notwithstanding this it is manifest that the Board has now fallen under the control of very strong hands and that the President is fully alive to the importance of the great sanitary work which is committed to his control. To this work the Poor-law medical service contributes in a degree which it would be difficult to exaggerate, and which will soon be materially increased by the Order by which the President is about to impose upon its members the duty of notifying to the local medical officer of health all cases of pulmonary tuberculosis which fall under their official cognizance. It is manifest that in this, as in all other departments of its work, the service is likely to be more effective in proportion as its position in the State is rightly recognised and rewarded. The conditions of different districts, of different forms of industry, and of different populations are so different that nothing like uniformity of those of the service itself can be expected; and such uniformity, if it were obtained, would soon be changed into diversity by the growth and the movements of populations. But the great difficulty of poor-law medical officers arises from the extent to which skill and knowledge have been placed under the control of ignorance and prejudice. Politicians have been eager for what they have described as popular local government, and they have not realised that good government requires a degree of knowledge which is never too abundant, which they have taken no pains to secure, and which in many districts is conspicuous only by its absence. There are scores of boards of guardians who have no other object than the accomplishment of any sort of little saving which the letter of the law may permit. Such bodies are wholly unfit to be intrusted with the control of an important branch of sanitary administration and their unfitness is nowhere more thoroughly known or more completely appreciated than at the Local Government Board. It is probable that no important changes can even be expected until the report of the Royal Commission on the Poor-law has been issued; but that report will almost certainly lead to legislation and will probably afford Mr. BURNS an opportunity, of which we believe he would not be slow to avail himself, of making changes in the system of medical relief by which the more serious grievances of the service would be removed. The public conscience is awakening to a recognition of the importance of the health of the poor as a factor in the general prosperity of the nation, and it is not likely that the officials to whom the care of that health is mainly committed will be left permanently under the control of bodies whose unfitness for the responsibilities imposed upon them is too often beyond the reach of doubt.

Francis Bacon of Verulam.

THESE are the days of tercentenaries and quatercentenaries, the homage paid by posterity to the master-builders of its platform and "coign of vantage." Of these "makers of empire" in the intellectual as well as material world none has stronger claims to present-day gratitude than the author of the "Novum Organum," that Magna Charta of inductive research to which experimental science owes a palingenesis, a new departure, justified, like Wisdom, of all her children. True, as a manual of method, it contains nothing that may not be elicited from the Organon of ARISTOTLE; its errors of omission and commission are patent to less competent critics than HUMBOLDT or LIEBIG; nay, it is demonstrable that not one single discovery or invention has been made upon its special lines. All the same, nothing can rob it of its distinctive merit—that of disenthralling the post-Renaissance mind from the fetters and manacles of tradition—tradition based upon an "Aristotelianism" which ARISTOTLE would have been the first to disown, tradition elaborated by the mediæval Church for ends no doubt laudable in their promoters' eyes, but fatal in the sheer selfishness of their "objective" and in their very *modus operandi*, to the consummation which they professed to have in view. And yet BACON was, *toto caelo*, removed from the materialist, in whose hands—

> "Philosophy, that leaned on Heaven before,
> Sinks to her second cause, and is no more."

"I would rather," he says, "believe all the fables in the Talmud than that this mighty frame was without a Mind." From the beginning to the end of his philosophic writings there is audible but one note, that of reverence; there is present but one attitude, that of humility. In this spirit and with this demeanour he is content, nay, inspired, to think and to act as what he calls the "Naturæ minister et interpres," as one who wooes and wins Nature only by obeying her, and that implicitly and unreservedly. By such an address and by such a service, and by no other means, is the Truth, signifying the life of Nature, to be reached, and that not by the individual man or by any generation of mankind, but by Humanity itself coöperating through the ages. "Veritas temporis filia," he devoutly says, improving on the adage of the great Greek lyric poet:—

> ἀμέραι ἐπίλοιποι
> μάρτυρες σοφώτατοι.

Indeed, in the service of Truth one supreme virtue must be practised, that of patience. Having put her to the question, we must not, as he says of PILATE, refuse "to wait for an answer."

The Honourable Society of Gray's Inn, in its celebration of the third centenary of BACON'S official connexion with its House, did well to invite the representatives of other professions besides that of the Law. Divinity and Medicine, as well as Affairs Imperial and Municipal, were equally in evidence at the ceremonial banquet—thereby attesting the universality of interests, the essential

catholicity, subserved by the philosopher. No liberal calling, no career intellectual or moral, but has profited by his initiative and intervention. Apart from what he actually contributed to the common fund of ideas, the mere perusal of his writings is an exercise, a discipline, in what he himself finely calls "the Georgics of the Mind." Aye, and the lessons to be drawn from his own failings and positive misdeeds are fraught with admonition, as he would have been the first to own. Restricted in worldly means, while passionately devoted to the research for which such means were an indispensable pre-requisite, he did that which was unlawful, he even proved himself corrupt, he let himself lapse into evil "that good might come." Posterity, however, has been disposed to deal leniently with him—all the more that he practically says to it, "Reum habetis confitentem"; or, in his own pathetic words when commenting on his condemnation: "I was the justest judge that was in England these 50 years; but it was the justest censure in Parliament that was these 200 years." MACAULAY, interpreting the verdict of the nineteenth century, has given it noble expression: "Turn where we may, the trophies of that mighty intellect are full in view: we are judging MANLIUS in sight of the Capitol!"

BACON himself, as if to account for, not to justify, his own *peccata*, admonishes the reader that his "new instrument," while it will confer infinite and never-ending boons on mankind, will do this only in the material direction, leaving morality pretty much where it found it. Comfort, convenience, all that makes for the physical ease and well-being of humanity will go on increasing and multiplying, but on one side only of human development. "Let us not," said D'ISRAELI, "mistake Comfort for Civilisation," a witty and profound saying which RUSKIN was never tired of bringing home to a world exulting in its wealth and prone to the self-indulgence which wealth can favour. Take, he would say, the Platonic Trinity, the Beautiful, the True, the Good. In the first of these, are we superior, nay, are we equal, to the age that produced a PHIDIAS and PRAXITELES in sculpture, a ZEUXIS, a PARRHASIUS, and an APELLES in painting? In the second, are we one step nearer the solution of Knowing and Being than PLATO or ARISTOTLE, whose entrance into a modern metaphysical lecture-room would be more likely to embarrass the professor than to enlighten themselves? In the third, are not sin and crime a perennial quantity, more refined perhaps in their methods but not less real in their character than in ages when the steamship and the telegraph were unknown? Nay, are not these latter the instruments of despotism as much as of liberty, of the criminal as much as of the philanthropist? Questions these to be answered in the all-including Baconian sense, conveyed in the aphorism, "Man was made to mourn," which will be as true of him in the latter day as in the first! To the end of time humanity will have need of all its resources against the agencies of evil which have hitherto beset it; nor can an epoch yet be foreseen when the legal, the medical, and the ecclesiastical vocations will have died out for lack of employment. BACON, while enthusiastic in his estimate of the power of the "new instrument," did not omit to enter a caution as to its limitations—a caution not more needed in his own generation than in what a recent speaker, with unconscious humour, referred to as "this so-called twentieth century"!

The Pollution of Milk.

THE people of Chester are fortunate in the possession of a medical officer of health who is not only familiar with the dangers encountered by the community, by reason of the unsatisfactory methods of the production of milk in vogue amongst farmers generally, but who has the courage to speak plainly to his sanitary authority and to remind that body of its serious responsibility in connexion with this important subject. We have received from Dr. A. E. THOMAS, the health officer of Chester, an interesting pamphlet consisting of a reprint of a report submitted by him to his sanitary authority, in which he deals with the subject of the pollution of milk thoroughly and after a fashion which is in some respects original. The report has apparently been approved by the Chester city council, for it has ordered its publication for general distribution in the form now before us. The amount of money spent annually on the production of milk in the United Kingdom is enormous. "In round numbers" Dr. THOMAS computes it "at between 120 and 130 millions annually, or about two-thirds of the cost of the Boer War, about three-fourths of the national drink bill, and roughly about one-sixth of the National Debt." We proceed firstly to follow Dr. THOMAS, of necessity very briefly, in his description of the chief existing sources of the pollution of milk, based on his official experience in Chester and its neighbourhood, and then to notice his suggestions for the prevention of such pollution, for we believe that contamination of this commodity is by no means confined to the district referred to. Discussing the more common sources of the pollution of milk we are told that the problem of "clean milk" in all probability circles around the actual milker who is frequently the dirtiest individual in the cowshed; indeed, sometimes the cleanest is the cow itself. Among milkers he has observed general uncleanliness of the hands, finger-nails, face, and skin, filthy habits during milking, and the use of soiled clothes or fouled leather apron whilst milking, frequently a soiled equipment being reserved for this work alone. It is quite conceivable that the milker suffering from pulmonary tuberculosis may infect the milk or that patients who have been the subjects of enteric fever may some years later become sources of infection to others and may excrete daily countless numbers of specific germs. Obviously, therefore, it is desirable that persons in both the latter categories should be excluded from any department of the production of milk which exposes it to the risk of conveying infection. It is high time, says Dr. THOMAS, that the ignorant, dirty, careless milker was abolished and replaced by a clean and careful operator trained in one of the many dairy schools now established. It is not enough to provide washing basins, soap, towels, and nail brushes: it should be somebody's business to see that these are regularly used and that the milker does actually clean himself before milking. Very obvious is the influence of overcrowded, ill-ventilated, badly-

drained cowsheds in aiding the pollution of milk. The dust raised during sweeping or bedding the cows is loaded with organisms which may include the bacillus tuberculosis and the bacillus coli, or the bacillus of slimy milk. The practice of milking cows in the stalls where they are fed and housed is undesirable: the coming and going of cowkeepers, the traffic, and the movement of animals stir up a considerable amount of polluting material which finds ready access to the open milk pail. The use of milk-cans with large open tops and badly fitting covers and the system of keeping the dipping utensils suspended inside the milk-cans are practices which promote further contamination. Cans which are battered or the internal tin plating of which is worn off in patches are difficult to cleanse effectually; they enable a thin layer of bacteria to survive from one emptying to the next filling, ready to develop and to multiply in the fresh supply of milk. Cans insufficiently steamed or "cleansed" in polluted water, the use of dirty or infected cloths for cleansing purposes,—all these are fruitful sources of contamination. Milk utensils must not merely be "cleansed," they must be made bacteriologically or surgically clean. It no longer holds that "anything is good enough to clean a milk-can with"; the work requires care and consideration, which can only be appreciated by those who have received adequate instruction and training.

In the year 1906 the public analyst of Chester was requested, in forwarding analyses of samples of milk, to report on the nature of the sediment present, its amount, and its constituents. Later, the analyst reported that some of the samples contained a sediment consisting partly of cowdung, whereupon a general warning was issued against uncleanliness in milking, as well as in stabling and grooming cows, with an intimation that neglect of such precautions would lead to prosecution in future. Since that time several prosecutions have been instituted in respect of cowdung in milk and in five of them fines were inflicted. The effect of these legal proceedings upon the cleanliness of the milk has been marked, for whereas in former times it was not uncommon to find a slight brownish sediment at the bottom of the milk-jug, visible to the naked eye, such a sediment, although still present in the milk of large towns, is becoming rare in Chester. It will be generally conceded that any sample of milk obviously contaminated with cowdung should be unhesitatingly seized and destroyed, and, indeed, that contamination of milk with filth of any kind should be visited with severe penalty, if not with actual imprisonment of the offender.

The following are some of the chief suggestions offered by Dr. THOMAS for the improvement of the conditions commonly prevalent in farmhouses and dairies. The milker should be furnished with soap, towel, and nail-brush for use before each milking; he must be compelled to keep himself clean, for he has commonly as much aversion to cleanliness as has the tramp in the casual ward; a clean white overall should be worn during milking; and the cows should be kept well groomed and brushed—in fact, should be kept as clean as the horse. At present there is probably no animal in a farm, not even the pig, which is allowed to remain in such a filthy condition as is the cow. The hairs about the flanks, around the udders, the hindquarters, and the tip of the tail should be kept short. Clean bedding should be provided daily and the cow-byre should be cleansed at least an hour before the time of milking. The herd of cows should be periodically examined by a veterinary surgeon and any animal with diseased udder should be stopped at once from contributing to the milk-supply. As regards the storage of milk in milk-shops it is recommended that the milk should be kept in clean glazed porcelain vessels covered with muslin; it should be kept in a cool place at a temperature if possible below 40° F. The question of purity in our milk-supply is a vital one. The desire for pure milk is not a fad, a mere passing whim, though it is doubtful whether a large number of people even know the taste of "clean milk." Meantime, the demand is urgent for clean milk—milk that is free from pus and manure; milk that is fit for suckling children, nutritious, and free from disease germs—in short, milk that is milk, and nothing but milk. Unless this is to be obtained clean, wholesome, and satisfying, the time may, in Dr. THOMAS's opinion, come when its municipalisation or nationalisation may have to be considered seriously.

Annotations.

"Ne quid nimis."

ROYAL COLLEGE OF SURGEONS OF ENGLAND AND WOMEN CANDIDATES.

IN 1876 a law was passed by which examining bodies granting diplomas or degrees qualifying for the practice of medicine were enabled to admit women candidates to their examinations. Many of the Universities and other medical examining bodies opened their doors to women candidates by virtue of this Act, but the Universities of Oxford and Cambridge and the Royal College of Physicians of London and the Royal College of Surgeons of England declined to follow the example of the rest. In 1895 a petition from the officers and teachers of the London School of Medicine for Women and the staff of the Royal Free Hospital and others interested in the matter was presented to the two Royal Colleges; it requested that the examinations of the Colleges should be thrown open to women candidates. At the Royal College of Physicians of London it was considered at an extraordinary Comitia of the Fellows and it was rejected by nine votes, 59 voting against the granting of the petition and 50 in favour of it. At the Royal College of Surgeons of England it met with a slightly different reception. It was considered by the Council advisable to refer it to the annual meeting of Fellows and Members and there it was resolved to reject the petition by 58 votes to 39. The Council of the College subsequently considered the petition and passed this resolution:—

> The Council of the Royal College of Surgeons of England, although in favour of granting the petition of the officers and teachers of the London School of Medicine for Women, do not see their way to admit women to the Conjoint Examination in face of the adverse vote of the meeting of the Fellows and Members of this College and the expressed opinion of the Royal College of Physicians.

There the matter rested for 12 years, till in the early part of last year a petition signed by a large number of medical men was presented to the two Royal Colleges asking for the admission of women candidates. In May, 1907, the Council of the Royal College of Surgeons passed the resolution that "in the opinion of the Council it is desirable that women be admitted to examination for the Diploma of Member," and it was resolved to approach the Royal College of Physicians on the matter. An extraordinary Comitia of the Fellows of the Royal College of

Physicians was held in January of this year and a motion was carried that it was desirable that such alterations should be made in the by-laws as to allow the admission of women to the examinations of the College. This was carried by 74 votes to 33. When the Council of the Royal College of Surgeons was informed of this, it was decided to take a poll of the Fellows and Members of the College, and the result was that there was a majority of 415 against the proposal to admit women to the examination for the Membership and a majority of 1182 against admitting them to the Fellowship, 9451 Fellows and Members voting; when the votes of the Fellows were considered separately, it was found that the Fellows were in favour of the admission of women, though the majority in favour of admitting them to the Fellowship was only 34 out of 1034 who voted. It must be borne in mind that 13,812 circulars were sent out to the Fellows and Members and that more than 5000 were unanswered. On Thursday of last week the Council of the Royal College of Surgeons considered the matter finally and on the motion of Mr. Clinton T. Dent it was resolved to admit women candidates to all the examinations of the College. Two or three months will elapse before the necessary alterations can be made in the by-laws and the approval of the Home Secretary has to be obtained, but that will necessarily follow, so that women candidates will be admissible to all the examinations of both the Royal Colleges, including those of the Conjoint Examining Board for England. It was possible for the Royal College of Physicians to admit to the examination for the Membership, or for the Royal College of Surgeons to admit to the examinations for the Fellowship without the consent of the other College, but the consent of both was needed for the admission of women to the examinations of the Conjoint Board. It will be noticed that the Royal Colleges are admitting women under the Act of 1876 and the Royal College of Surgeons has taken counsel's opinion on the question of the voting powers of those women who obtain the Membership or the Fellowship of that College, and the opinion has been given that those women who obtain these diplomas will not possess any voting power. It was hoped by many Members of the College that the Council would apply for a new charter to enable it to admit women to the examination, and thus an opportunity would have been afforded for the Members of the College to obtain representation on the Council, but the action of the Council in utilising the Act of 1876 has frustrated this hope. It is of interest to consider the gradual change of opinion in this matter, and this is well shown by the voting at the meetings of the Royal College of Physicians. In 1877 the admission of women was negatived by 68 votes to 16; in 1895 the votes were 59 against and 50 in favour of the admission of women; and in 1908 the figures were 33 against the admission and 74 in favour. The only bodies possessing the power of granting qualifications to practise medicine and surgery which still decline to admit women to their examinations are the Universities of Oxford and Cambridge.

OLD AGE PENSIONS AND THE DESTITUTE.

AT the Hackney coroner's court on Oct. 17th Dr. W. Wynn Westcott held an inquest on the body of a crossing-sweeper, aged 77 years, who had been grossly neglected before he was admitted to the parochial infirmary suffering from a recent apoplexy. He was found in his single-room tenement in a very filthy state; indeed, maggots were seen crawling over his body. The coroner, having tried in vain to discover someone upon whom the responsibility for the care of the old man could be placed, instanced the case as an exemplification of his previously expressed opinion that the forthcoming old age pension would not be a certain benefit to those aged and feeble people who were without relatives who could, and would, help to look after them and keep them in a cleanly condition. With the proposed weekly grant of a pension of five shillings he was of opinion that, in London at any rate, the duties of the relieving officer and the work of the coroner would be greatly increased in so far as the aged poor were concerned. Five shillings were insufficient to pay for rent, fuel, food, and attention. Yet many old people would, while in receipt of this pension, absolutely decline to be removed from "home" to the parochial infirmary wherein they could be skilfully treated and nursed. Dr. Wynn Westcott cited some facts which had been collected by a friend of his from a neighbouring Poor-law institution. All those inmates who were above 69 years of age had been interrogated as to whether they would, if offered a 5*s.* weekly grant, accept this and take their discharge or prefer to continue as now in the institution. Of 161 men asked, 30 said that they would under the above conditions take their discharge; of 208 women 35 said that they would prefer to live outside. A liberal discount must be made from these figures, as the friends or relatives might decline to accept the responsibility for the care of these 65 would-be outdoor pensioners; nevertheless, many of those who are being well looked after at present would strive to seek their freedom and in so doing would probably run very great risks of succumbing to neglect. The events of next year will probe the coroner's fear.

NOTIFICATION AND ISOLATION OF SCARLET FEVER.

IT is impossible to avoid some disappointment at the fact that notwithstanding notification and a constantly increasing proportion of isolated to notified cases of scarlet fever, the prevalence of this disease, judged by the number of occurring cases, shows practically no decline, even in those towns where notification and hospital isolation are most thoroughly carried out. It appears from the last report of the Statistical Committee of the Metropolitan Asylums Board that during last year 25,925 cases of scarlet fever were notified in London, of which no less than 89·4 per cent. were admitted for treatment in the Board's isolation hospitals. This number of notified cases exceeded those returned in any year since 1893 when 36,901 cases were notified, only 39·7 per cent. of which were admitted to hospital; while the percentage of hospital admissions to notifications has almost steadily increased from 42·8 in 1890 to 89·4 in 1907, which exceeded the percentage in any previous year. The figures for Manchester in Dr. J. Niven's report for 1907 (noticed in THE LANCET of Oct. 10th) also fail to show a satisfactory decrease of the prevalence of scarlet fever in that city, notwithstanding the large proportion of isolated to notified cases. During last year 2732 cases of scarlet fever were notified in Manchester, considerably exceeding the number in any of the ten preceding years, except 1906, when the number was 3075. The percentage of notified cases in Manchester isolated in hospital was 65·0 in 1907, and appears to have somewhat steadily declined during the last five years from 83·4 in 1903; in 1892 and 1893, however, the percentage of isolated cases did not exceed 58·5 and 58·6 respectively. Thus neither in London nor in Manchester do notification and isolation of cases of scarlet fever appear to have fulfilled the reasonable expectation of a decided decrease in the prevalence of this disease. The marked decline in the mortality from scarlet fever is proved by the fact that while the annual death-rate from this disease in England and Wales in the ten years 1861–70 was equal to 971 per 1,000,000 persons living, it has not exceeded 116 per 1,000,000 during the ten years 1898–1907; in London and in Manchester the mortality from scarlet fever has

shown a very similar decline. The figures quoted above make it more than doubtful, however, whether there has been any decline in the number of occurring cases at all commensurate with the decrease of fatal cases, although the individual cases are without doubt very generally and steadily becoming slighter and milder in type. It would be interesting to know whether there is any connexion between this change in the type of the disease and the systematic notification and isolation of the cases, which have been increasingly adopted in recent years. Dr. Niven holds the opinion that the type of the disease would again become more severe if the proportional treatment in hospital were to be reduced. The case-mortality of scarlet fever treated in the hospitals of the Metropolitan Asylums Board did not exceed 2·94 per cent. in 1906 and 2·80 in 1907; and in Manchester the mortality of cases treated in hospital was 3·6 per cent. in each of those years. These percentages showed, both in London and in Manchester, a marked decline from the rates of case-mortality of this disease in former years. Dr. Niven gives in his report some elaborate and valuable statistics respecting "return" cases of scarlet fever arising from discharged hospital patients and concludes that the number of such cases, speaking generally, is insufficient to prevent hospital isolation being credited with a wide beneficial influence. Whatever may be the true explanation of the persistent prevalence of mild cases of scarlet fever it seems impossible to suppose that decrease of hospital isolation of cases of this disease could tend to reduce its general prevalence.

THERAPEUTICS BY RAIL.

CROSS-COUNTER consultations, followed by prescriptions, "sharp, short, and decisive," may be favoured by the "man in the street," but for the invalid at the continental health resort or the Mediterranean sun-trap there is the "table d'hôte clinique" and the "winter garden practice," no less irregular and deplorable. Satire, indeed, on the stage and in the novel, has revelled in the exposure of the valetudinarian dupe who confides his symptoms to some amateur adviser at the hotel or *pension* and who reaps the reward of his credulity by having at last to call in the practitioner whose visits would have been fewer and the sum total of whose fees would have been lighter had he seen the case *ab initio*. But, in the words of the philosopher Hume, "the fools of this world are a large and influential majority," and so long as the 'populus vult decipi" there will always be the cynic to add "decipiatur." A new accession to the resources of irregular practice has made itself prominent of late years, and that is the appeal addressed to the railway passenger by the advertisements that stud his line of route, inviting him to try this "pill" or that "tonic" or the other "mineral water" if he would rid himself of the many maladies which he is presumed to harbour. Within a few score yards of each other—recurring far more frequently than milestones—the wooden hoarding or the painted placard assures him that a remedy has at last been found for his "nervous trouble" or his "bilious headache" or his "chronic dyspepsia," and that he has only to invest in the special pill-box or bottled liquid to regain the health which he has vainly sought from the "faculty." So largely have the British railway lines been utilised for these manifestoes that the "foreigner," more or less "intelligent," after a short experience of travel in these islands, has described them to his compatriots as another of the many proofs of "Anglo-Saxon gullibility." Following up his observations, he is humorously concerned at what the British public can—in every sense—be made to "swallow," and, basing his remarks on a recent article in THE LANCET on the sale of "patent medicines" he astounds his audience with the calculation that last year the "medicinali brevettati" consumed in Great Britain amounted to 65,500,000. The *Gazzetta del Popolo* of Turin—a journal widely diffused throughout Italy—comments facetiously on the childlike faith of the "buoni Inglesi" who have made the fortunes of so many millionaires by their consumption of medicines professing to cure "qualsiasi morbo, dal coléra ad un semplice raffreddore" (any ailment whatever, from cholera to a simple cold in the head); and between the lines it holds out an inducement to the would-be millionaires of Italy to profit by similar methods at the expense of Italians. All this makes rather melancholy reading—fraught as it is with proof of the immense leeway that has yet to be made up at home and abroad by education, confirming, as it does, moreover, the pathetic, if not despairing, cry of Shelley—

"How 'green' is this grey world!"

THE INVALID CHILDREN'S AID ASSOCIATION.

WE have received an appeal from the officers of this association stating that unless further funds are forthcoming it will be obliged to suspend its operations. This would be a great pity as the association is doing work of a very useful class in relieving children suffering from chronic diseases such as tuberculosis, rickets, chorea, and prolonged debility who cannot be kept in hospital sufficiently long to effect their cure and whose home circumstances render it impossible. The association has no buildings of its own but supports its beneficiaries in suitable nursing or convalescent homes in the country or by the sea until the medical man in charge pronounces the patient to be well enough to return home. Some cases have been treated thus for two years. It is in guaranteeing the cost of the weekly payments for these children that the association needs help, and it is thought that medical men might make its methods known to their well-to-do patients who are interested in children's charities. Another useful service that may be undertaken is that of visiting and keeping in touch with the association's children after their return to their homes and supervising the use of any surgical appliances or invalid carriages that may be supplied to them. This branch of the work was the original purpose of the association. We are asked to state that the secretary's office is at 69, Denison House, Vauxhall Bridge-road, London, S.W.

GANGRENE OF THE SKIN OF THE FOOT AFTER STOVAINE-ADRENALIN SPINAL ANÆSTHESIA.

FROM time to time untoward effects are recorded after spinal anæsthesia. The chapter of the dangers of this method has yet to be written. In the *Intercolonial Medical Journal of Australasia* for July Dr. D. Murray Morton has reported an unusual sequel—gangrene of the skin of the foot—which he describes as "unique amongst a very considerable number of administrations of stovaine-adrenalin during the last three years at St. Vincent's Hospital" (Melbourne). A debilitated man, aged 65 years, was admitted on Feb. 27th last suffering from two chronic ulcers in the lower part of the left leg. One began after a slight injury two years previously and the other spontaneously. There were no varicose veins and there was a doubtful history of syphilis. The urine did not contain albumin or sugar and the knee-jerks were present. On March 13th, under stovaine-adrenalin spinal anæsthesia, the ulcers were excised and Thiersch skin grafts were applied. Two-thirds of a cubic centimetre of a 10 per cent. solution of stovaine with half a cubic centimetre of adrenalin solution were injected into the spinal canal. There was no difficulty in the injection but a few minutes afterwards the patient showed symptoms of collapse. He vomited, the pulse became small, the face became pallid, and the respirations became very

shallow. One-twentieth of a grain of strychnine hypodermically and brandy were given, and artificial respiration was performed. Improvement took place and the operation was completed. Four days later an oval purplish vesicle, of about the size of half a crown, appeared on the sole of the left foot behind the little toe, and the skin beneath became purple. There was neither pain nor inflammatory reaction. Two days later a similar patch appeared on the outer part of the heel. In each case the subjacent skin became black and necrotic and separated slowly as a slough. On May 22nd healing was far enough advanced for the sores to be grafted which was done under local cocaine anæsthesia with good result. The Thiersch grafts applied to the leg were perfectly successful. Goldmann[1] has reported a case of gangrene of the skin of both heels following a spinal injection of two cubic centimetres of novocaine-suprarenin solution. The patient was 52 years of age and healthy, except for a moderate degree of arteriosclerosis. The injection was followed by severe pains in the neck, back, upper limbs, and especially in the heels. Dr. Morton suggests that the adrenalin may have been responsible for the gangrene which was obviously a trophic change. It will be interesting to note whether cases of gangrene occur after the spinal injection of the stovaine-glucose solution which is recommended by Mr. A. E. J. Barker[2] and so far has given excellent results.

THE INSPECTION OF SCHOOL CHILDREN BY COUNTY MEDICAL OFFICERS OF HEALTH.

IN our issue of Oct. 17th we commented under the above heading upon the situation which has arisen in Herefordshire as to the appointment of a county medical officer of health, part of whose duties would be the inspection of all the school children in the county. We pointed out that the council expected its county medical officer to pay for any assistance which he might require out of his own pocket. We now learn that the salary offered was £500 a year, out of which an assistant would certainly have to be paid—there are, we may add, some 16,000 children in the county—and other expenses, such as travelling expenses, would have to be considered. Altogether it is probable that the £500 a year would be reduced to something over £200 by the time when all expenses had been paid. Mr. Herbert Jones, as we said before, rightly demurred to the proposals of the committee as to the inspection of school children and the suggestion that the county medical officer should pay for any assistant out of his own pocket. He therefore withdrew his application for the post. At a meeting of the Herefordshire County Council, held on Oct. 10th, we see that it was decided that the education committee should select three other candidates to appear before it from whom an appointment might be made. We have before us a letter dated Oct. 16th in which the clerk of the Herefordshire County Council informs one of the candidates that he (the clerk) has been "directed to inquire whether your application may still be considered as before the committee." This letter would appear to show that the education committee is still in hopes of obtaining a medical officer on the terms which Mr. Herbert Jones has rejected. We cannot think that £500 per annum is an adequate salary if out of that £500 about half must be deducted for assistance; but, as we said in our leading article last week, the proposal that the county medical officer of health should have most of his time taken up by the inspection of school children is one which cannot be commended on general sanitary grounds. The Herefordshire county council might take example by the Norfolk education committee which is about to appoint two medical men for the medical inspection of children under the supervision of the county medical officer of health. These two gentlemen will each get £250 per annum and the necessary travelling expenses.

[1] Zentralblatt für Chirurgie, 1907, No. 2.
[2] THE LANCET, Sept. 5th, 1908, p. 710.

THE MODERN BLOATER.

THE bloater is excellent food and probably represents a nutritive value, having regard to its cheap price, greater than all the other animal foods. Not only, however, is the herring decidedly nutritious but in the cured form it is also tasty and appetising. It is to be feared, however, that modern bloaters, and more particularly the specimens sold in London, are often robbed of their attractive qualities by the adoption of a process of curing which is an ineffectual imitation of the better classical method. Possibly a "short cut" to the obtaining of a bloater from the fresh herring consists simply of a process of pickling the fish in, or brushing the surfaces with, a curing "essence" composed of tar or smoke oils. It should not be forgotten that curing by smoke not only preserves the fish but adds to it a condiment which aids the appetite and does no injury to the organism. The treatment, therefore, with solutions of antiseptics cannot be regarded dietetically in the same light as can the curing process. It is not unlikely, also, that borax and other antiseptics are used in order that the preserving process may produce what is called a "mild cured" article. In this way it is not unlikely that stale or even worse herrings are manipulated which might obviously be a source of danger to health. The result is that the modern bloater is often, as a correspondent has rightly pointed out, sodden, tasteless, unpleasing, or even only just eatable, whereas the bloater of previous times was attractive in appearance, the flesh being firm and sound yet tender and possessing an agreeable flavour. The same remarks apply to the kippered herring. Surely modern methods which detract from the pleasing or the important æsthetic qualities of a cheap and wholesome food need strongly to be condemned, especially in these days when we hear so much of the sufferings experienced by the starving unemployed.

PUNCTURE OF THE BRAIN.

ELSEWHERE in this issue we publish an article by Professor H. Tillmanns of Leipsic on a very important subject, puncture of the brain. The operation is as old as the time of Hippocrates, though it would be rash to believe that it was employed by the Father of Medicine himself, for much that is ascribed to Hippocrates is really due merely to his school. In the literature of the centuries which have passed since these early days of medicine references may be found here and there to the practice of puncture of the skull, but it is only within recent years that any systematic advance has been made, and even now many surgeons look askance at the operation. Antiseptic surgery has robbed the operation of the dangers which it once possessed and when practised with care the risk is extremely small. As Professor Tillmanns points out, puncture of the brain can be employed both for diagnostic and for therapeutic purposes. For diagnosis a puncture may be employed when there are signs of pressure on the brain or when an accumulation of blood, pus, or other fluid is suspected in the substance of the brain or in its ventricles. When the diagnostic puncture affords definite information it will be immediately followed by an operation for the removal of the disease. For purposes of treatment puncture of the brain is also of no small value. It can be used for cases where fluid has collected in the ventricles, and it has also been employed for the injection of liquids, such as tetanus antitoxin, into the cranial cavity, though this

method of treatment is now nearly abandoned. Professor Tillmanns in his paper describes the technique of the operation and discusses the methods to be employed. When due care is taken harmful results are rare and in many cases multiple puncture has been performed without any ill effect. It seems clear that puncture of the brain will before long take a recognised place in surgery, both for diagnostic and therapeutic purposes, and Professor Tillmanns's article should give an impulse to the spread of the operation.

A POINT UNDER THE WORKMEN'S COMPENSATION ACT, 1906.

A CORRESPONDENT calls attention in a letter published on p. 1248 to a question which may arise at any time under the Workmen's Compensation Act when a nurse claims to have been injured by an accident in the performance of his or her duties and when there may be a difficulty in ascertaining who, if anyone, is liable to pay the compensation ordered by the Act. The question is not, of course, confined to occasions when nurses are injured but presents itself in many other phases of employment or alleged employment, and particularly when assistance of a more or less temporary nature is obtained by a person who is ready to pay for it but who does not thereby necessarily render himself the "employer." According to the definition in Section 13 of the Act, the word "employer" "includes any body of persons corporate or unincorporate and the legal personal representative of a deceased employer, and, where the services of a workman are temporarily lent or let on hire to another person by the person with whom the workman has entered into a contract of service or apprenticeship, the latter shall for the purposes of this Act be deemed to continue to be the employer of the workman whilst he is working for that other person." In connexion with private or domestic service instances can readily be suggested of the lending or letting on hire of workmen by employers who under this section do not thereby free themselves from liability to compensate for accidents occurring during the temporary hiring. The groom supplied by a livery stable or the waiter sent in by a refreshment contractor are examples, but in these, as in the case of the male attendant referred to by our correspondent, a claim may be made against the person for whom the work is actually done against which he will wish to defend himself, and sometimes it will be pressed all the more stubbornly because the legal employer has not insured himself and is not well provided with funds to meet his possible liability. How the law may be applicable to the instance quoted by "Cautious" it is not possible to say without further knowledge of the facts from which an inference might be drawn. Some nurses are under a contract of service to an "institution" from which they may be "sent," to quote his words, and in the case of others the institution may be merely an agency for finding employment, the contract for which may be made by the patient through them with the nurse. The description given by "Cautious" is consistent with either condition, and no doubt the question of liability under the Workmen's Compensation Act was not thought of by the attendant, by the institution, or by the patient until the injury was sustained by the first mentioned. In this particular case a solution occurs to us which may meet the difficulty, but as it is not suggested by our correspondent we merely advance it as a possible one. The patient, a chronic invalid usually under the care of a permanent attendant, may have insured the latter under the Act in such terms that his insurance company would be bound to compensate the temporary attendant on his behalf or to defend the claim. If the permanent attendant was away ill, or even if, though in the house, he was performing no duties, so that there was no liability possible with regard to him, the policy may be such as would cover his substitute. This, however, is a matter only affecting a particular case and the more general question as to who is to be looked to for compensation as a general rule by a nurse merits the serious consideration of patients of medical men who may be called on to find nurses for them, and last, but not least, of the nurses themselves. The most satisfactory position would appear to be obtained when the nurse and the nursing institution are at one in admitting a contract of service between them, and when the latter can furnish proof that it has insured the former. In the case of the nurse who is engaged by the patient under such conditions that the nurse becomes a "workman" and the patient an "employer" there should be insurance. We believe that many private individuals insure, not only in respect of their regular servants but also against the contingency of an accident happening to one only temporarily in their service. Such an insurance as this might be thought to apply to a nurse, but the premiums in respect of it are usually on a scale more consistent with the compensation of charwomen or caretakers engaged for a season than of nurses for the sick, and we have little doubt than when these are to be insured the insurance company would expect a special contract with premiums fixed after consideration of the extent not only of the pecuniary liability but of the peculiar risks involved.

THE TRYPSIN TREATMENT OF CANCER.

A LITTLE over a year ago in a leading article[1] we discussed the trypsin treatment of cancer at considerable length, and while keeping an open mind as to the possibility of its being proved of value concluded that no evidence of this had been produced. This treatment has been much extolled in the lay press, and as a result exaggerated hopes have been entertained by the public who to some extent have forced the use of trypsin on the profession. While admitting the advantage and even the necessity of instructing the public in some medical subjects, such as hygiene, we must deprecate any attempt to bring before them questions which are *sub judice* in the profession. Only evil can result from resort to such an incompetent tribunal. False hopes are aroused and when these are dashed to the ground persons ignorant of the difficulties of medical research too often are carried by the reaction to a disbelief in medical science and fall victims to quacks. The evidence which has accumulated since the publication of our article only confirms our conclusion. At the Seventh Congress of Scandinavian Surgeons Dr. N. R. Blegvad presented a report of ten cases of malignant growths treated by trypsin injections in Professor Rovsing's clinic at Copenhagen.[2] In only one case was there possible benefit (diminution of the quantity and fœtor of the discharge). In the *New York Medical Journal* of August 29th Dr. J. E. Weinstein has reported ten cases of carcinoma of the digestive organs in which there was no doubt as to the diagnosis and this treatment was tried. All the cases were treated by subcutaneous injections of trypsin and amylopsin. The amylopsin was used on the theory that the trypsin in acting on the cancer albumins produces poisonous compounds which the amylopsin digests. The preparation used (a glycerine extract of the pancreas) was prepared by Messrs. Fairchild Brothers and Foster. Some aching in the bones and backache were produced but therapeutic effects were entirely negative. There were some periods of improvement and at times the symptoms were temporarily lulled, but these were no more than occur spontaneously in any illness. Only one good result was observed—the soothing moral

[1] THE LANCET, July 27th, 1907, p. 238.
[2] Ibid., Sept. 21st, 1907, p. 862.

effect of the hope aroused in patients under sentence of death. But this was only temporary. Dr. Weinstein sarcastically concludes: "There is no need to import placebos from Edinburgh. We have plenty on this continent." In a paper read at the Congress of the International Surgical Society and published recently by us[3] Mr. Henry Morris exhaustively discussed the trypsin treatment of cancer and came to an adverse conclusion.

EGYPTIAN VITAL STATISTICS FOR 1907.

IN an unsigned report issued with the usual statistical return of the Egyptian Public Health Department for the week ending Sept. 16th, 1908, we are supplied with an abstract of the demographical results of 1907. The native population on July 1st, 1907, exclusive of nomads, amounted to 11,038,112, showing an increase of 223,544, or about 2 per cent., on that of the preceding 12 months. These figures may be accepted as fairly exact, but the foreign population (which is returned as 112,447, the same as in 1907) can only be regarded as approximately correct because under the capitulations foreigners cannot be compelled to register births. This grave defect has often been mentioned in our columns and elsewhere, but apparently there must be difficulties in the way of its removal, which for some unaccountable reason are deemed to be insurmountable. The native births during the 12 months were at the rate of 43·7 per 1000; during the preceding year the birth-rate was 44·4 per 1000. 1334 foreign births came to the knowledge of the Public Health Department, but no rate can be furnished because, as already said, "the births of foreigners ..... are not all notified." The native death-rate for 1907 was 27·0 per 1000 against 24·1 in 1906. The deaths in the foreign population took place at the rate of 23·0 per 1000; during 1906 it was 19·8 per 1000. The number of vaccinations performed during the twelvemonth was 456,285 with 3166 failures. There were also 4453 revaccinations, among which 714 were unsuccessful. The native births numbering 482,407 were in excess of the number of vaccinations by 26,122, but this discrepancy was no doubt due to premature infantile mortality. With regard to vaccination there is apparently no diffentiation in this return between natives and foreigners. The total number of nomads, or Bedouins as they are called, was 602,139. They are distributed all over Egypt and in many cases have long ceased to be wanderers.

SPENGLER'S TREATMENT OF TUBERCULOSIS.

WE have already alluded[1] to the results which are said to have been obtained in cases of tuberculosis from the use of a form of inoculation devised by Dr. Spengler of Davos. We have now received a reprint of an article by him,[2] in which an account is given of the theoretical basis on which his treatment is founded. It would seem that in attempting the cure of disease by means of the separated serum of the blood we have thus far been throwing away the substance for the shadow, since, if Dr. Spengler be right, it is in the red corpuscles of the blood that the immunising substances are formed and mainly stored, only a small proportion overflowing into the serum. Thus, according to his experience, there may be in the dissolved erythrocytes as much as one million times the quantity of the immune body which is contained in the serum; and this rule applies both to agglutinating and precipitating bodies and to antitoxic and bactericidal substances. The last two are, of course, the most important. Dr. Spengler states that the antitoxic body may be recognisable in a dilution of 1 in 100,000,000,000 of the blood of an immune animal. He admits that action in such a dilution is something apart from ordinary chemical action and speaks of an "atomic dissociation" which takes place, liberating "specific electrons." He has prepared the immune body from animals and advises its use as a remedy for human disease in the form of hypodermic injections; it can also be rubbed into the skin. It is not an albuminous substance. It is polyvalent, acting against pyogenic bacteria as well as against tubercle bacilli. It is procurable commercially under the name of "J. K." (Immun Körper). The theory propounded by Dr. Spengler is somewhat startling but it should not be difficult to verify his views as to the preponderance of immune bodies in the erythrocytes. If this be confirmed, then treatment by his vaccine will be supported by independent evidence and should receive prompt trial in this and other countries.

[3] Ibid., Oct. 3rd, 1908, p. 997.
[1] THE LANCET, March 21st, 1908, p. 893.
[2] Deutsche Medicinische Wochenschrift, 1908, No. 38.

THE annual meeting of the Association of Public Vaccinators of England and Wales will be held at the Hotel Cecil, London, on Friday, Oct. 30th, when the chair will be taken by the President (Dr. A. Drury of Halifax) at 3 P.M. After the transaction of business a paper will be read by Dr. A. E. Cope (London), entitled, "Small-pox: What it was before the Introduction of Vaccination; and the Future of Small-pox, What is it to be?" The annual dinner will take place at the same hotel at 6.30 P.M. All public vaccinators, whether members of the association or not, are cordially invited and are asked to communicate early their intention to be present to the secretary of the association, Mr. Charles Greenwood, 1, Mitre-court-buildings, Temple, London, E.C.

THE opening lecture of the winter session of the Mount Vernon Hospital Post-graduate Course will be given by Sir James Barr on Oct. 28th, at 5 P.M., at the central out-patient department of the hospital, 7, Fitzroy-square, London, W. The subject of the lecture, to which qualified medical practitioners are invited, will be "Mitral Stenosis."

Mr. William Knight Treves, F.R.C.S. Eng., died at his residence in Margate, on Oct. 14th, aged 65 years. Mr. Treves, who was a brother of Sir Frederick Treves, qualified as F.R.C.S. Eng. in 1870 and at the time of his death was consulting surgeon to the Royal Sea Bathing Hospital at Margate.

WE regret to announce the death of M. Paul Berger, the great French surgical authority on fractures and dislocations, which occurred on Oct. 17th. Pressure on our space forbids an extended notice of his career in this issue, but we hope to publish one later.

A TELEGRAM from the Governor of Mauritius received at the Colonial Office on Oct. 16th states that for the week ending Oct. 15th there were 13 cases of plague and 9 deaths from the disease.

THE first scientific meeting of the Zoological Society of London for the session 1908–09 will be held in the society's rooms at 3, Hanover-square, W., on Tuesday, Nov. 3rd, at 8.30 P.M.

UNIVERSITY COLLEGE, LONDON.—A course of eight lectures on Certain Fundamental Problems in Physiology Common to Animals and Plants is being given by Dr. W. M. Bayliss on Wednesdays, at 5 P.M. The lectures will be devoted mainly to the permeability of cells and membranes and phenomena connected therewith, such as plasmolysis, secretion, nature of the nerve-impulse, &c. The lectures are open to all students of the University of London, also to qualified medical men and to such other persons as are specially admitted.

The Lancet Special Commission

ON

THE ORIGIN, MANUFACTURE, AND USES OF EXTRACT OF MEAT.

INTRODUCTORY.

FROM time to time we think it of interest to give an account of the processes involved in the manufacture of various foods which are well known to, and largely consumed by, the public. It is obviously impossible in very many instances for the medical profession or the public to ascertain for themselves the conditions under which these food products are manufactured, and yet it is very desirable that some assurance should be obtainable that not only are the foods themselves of excellent quality and in sound condition but that they are manufactured under the strictest demands of hygienic practice. It is, of course, open to our health authorities or the public itself to have samples of foods as they reach the consumer submitted to analysis, but this precaution, admirable as it is, leaves the question of the kind of sanitary *régime* under which they are prepared untouched. This is especially the case with imported foods of animal origin such as, for example, extracts of meat in various forms. We believe that the following account, which relates to the leading and oldest established industry of this type, which breeds and rears its own cattle under the personal supervision of its officials, and which had for its patron and founder a man who was a very distinguished physiologist and chemist in his time (1803–1873), will be read with interest. The materials for this account have been collected entirely by our Special Commissioner who was appointed to visit the very interesting scene of the operations concerned in the great industry early in the present year and in the height of the busy season. The facts are recorded exactly as he found them, and in the course of the article appears a number of analyses made in THE LANCET Laboratory of the products taken by him fresh from the factory and of samples collected at random in the open market at home. Finally, a section is added in which the dietetic value of these products is considered in the light of modern analytical methods.

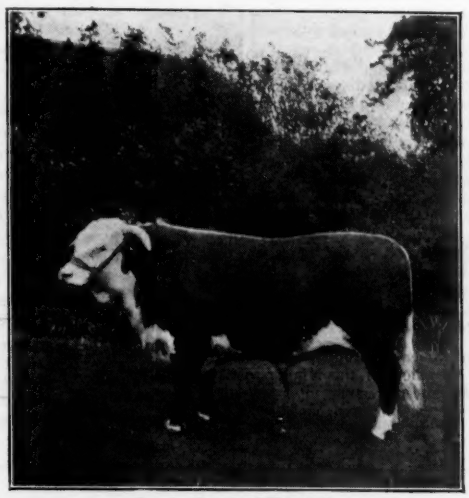


FIG. 1.—Pure-bred Hereford.

HISTORY AND PROGRESS OF THE MANUFACTURE OF MEAT EXTRACT.

Only those who have actually travelled over the vast grassy plains of Argentina, Uruguay, and Paraguay in South America can realise with any force at all how great have been the growth and progress of the cattle industry there since the year 1850 when Baron Justus von Liebig suggested the preparation of an extract of meat in countries where the breeding and rearing of cattle could be economically carried out. It was not, however, until 1865 that any serious attempt was made to put the suggestion into practice. "In 1862," wrote Baron Liebig, "I received a visit from Herr Giebert, an engineer of Hamburg, who had spent many years in South America and Uruguay where hundreds of thousands of sheep and oxen are killed solely for the hides and fat. He told me that directly he saw my account of the preparation of this extract he came to Munich with the intention of learning the process and then returning to South America in order to undertake its manufacture on a large scale. I therefore recommended Herr Giebert to Professor Pettenkofer, who willingly made him familiar with every detail of the process. He then returned to Uruguay in the summer of 1863, but owing to many difficulties which generally hinder the introduction and management of a new business, it was almost a year before he could actually commence the manufacture. Herr Giebert requested permission to call his extract by my name, which I granted, telling him, however, beforehand that if it contained the least trace of fat, which causes it to become rancid, or the gluey substance which the ordinary solid broth or consommé contains, which predisposes it to become mouldy, and entirely deprives the product of the unalterability of the pure extract, I should be the first to publicly assert its inferiority. In return Dr. Pettenkofer and myself promised to submit each to analysis free of cost and if found genuine to testify to the fact on condition that he would bring it into commerce at not more than a third of its present price. The arrangement, of course, relates only to the commencement of the importation, as the testimony of chemists will be no longer necessary when the public are once acquainted with the characteristics of the pure extract. Herr Giebert proposes to produce from five to six thousand pounds per month. The first sample, of about eighty pounds extract from beef and thirty pounds from mutton, arrived a few days ago in Munich, and we have the satisfaction of being able to say that for a product from the flesh of half-wild animals its quality is excellent; and we believe that the other condition—i.e., the price—will also meet our expectations."

The publication of this interesting statement in THE LANCET of Jan. 28th, 1865, drew some inquiries from our readers as to whether the extract could be obtained in quantity sufficient for practical purposes. On our own authority we replied in THE LANCET of March 18th, 1865, that "we believe that it is not at present a commercial article in this country but is likely to be so," and referred the writers to Baron Liebig himself. Later we received a letter from Mr. G. Van Abbott,[1] in which he wrote that "through the kindness of Baron Justus von Liebig I have arranged to have the first supply that can reach this country, and the moment it arrives I shall, with your permission, make it known through your columns." From a paragraph published in THE LANCET of April 29th, 1865, p. 467, it is made evident that Liebig's extractum carnis became for the first time a commercial commodity, for we then wrote: "We have learned that Mr. Van Abbott has just received a supply of the extractum carnis of Liebig, the merits of which have been of late so much discussed and a sample of which has been forwarded to us." These small consignments are now of historic interest, but they represented the beginnings of an industry which is at the present time of considerable importance in connexion with the problem of the food-supply of the world.

Liebig spoke of the first sample which he had received as being about 80 pounds, its quality, he added, being excellent, especially considering the fact that it was "a product from the flesh of half-wild animals." Nearly 50 years have come and gone since Liebig thus pronounced on the fruits of a pet project of his own, and, pleased as he was with the prospects of the comparatively new industry, he would have viewed with the liveliest satisfaction if he had lived its superstructure grown to its present enormous dimensions. Take, for example, some facts connected with the enterprising company to which he gave permission to bear his name. The Liebig

[1] THE LANCET, March 25th, 1865, p. 330

Extract of Meat Company farmed in 1868 some 28,494 acres of land, and the total herd of horned cattle reared on this area was 12,000; in 1878 the number of acres was 37,961 and the number of cattle 19,036; in 1888 the number of acres was 126,984 and of cattle 36,685; in 1898 the pasture land comprised 254,133 acres and the cattle numbered 66,435 head; and this year (1908) the acreage is no less than 1,302,386 and the number of cattle 224,406. That is to say, that at present this company possesses one and a third millions of acres of grass lands and nearly a quarter of a million of cattle. Striking as the figures may be as illustrating the enormous expansion of the cattle-rearing industry, they become still more impressive when regard is had to the fact that the cattle are no longer, as in Liebig's day, and according to his own words, "half-wild animals," but are bred from the choicest pedigree stock taken from the farms of our best English breeders. Drafts of Hereford bulls of the type shown in Fig. 1 and heifers and Aberdeen Angus, all from prize pedigree stock, are at intervals sent out not merely to perpetuate the herds but to improve the race and so to maintain such a superior class of beast as to produce a corresponding quality in the food product. Moreover, the Argentine and Uruguay authorities insist upon certain strict precautions being observed before the pedigree animals are admitted into the country. One certificate, for instance, is required from the home farm stating that the animals and the herd from which they came are free from disease and another to the effect that at the port of shipment the animals were sound. A further document is required from the Board of Agriculture that in the land whence they came there is a freedom from foot-and-mouth disease and so forth. On arrival the animals have to undergo government veterinary examination and a quarantine of 40 days, towards the end of which the tuberculin test is applied. The animals are only allowed to proceed to their destination when these tests have been proved to be satisfactory, failing which the beasts are killed without any compensation to the owners. As a rule, importers take the precaution of having the tuberculin test applied to the animal before it is shipped. It must be admitted that these stringent rules, made, as they are, in the interests of the health and sanitary conditions of the animals, are admirable and calculated to prevent the possibility of bovine disease being introduced into the country from without.

MODERN CATTLE FARMING AND ITS MAGNITUDE.

It is difficult to convey an adequate sense of the magnitude of the cattle farms situated upon the Liebig Company's property in the Argentine, in Uruguay, and in Paraguay. Even a rapid round of all the *estancias*, without spending more than a day and a night at each, would occupy the best part of three months. And the traveller would encounter over the thousands of miles covered a vast ocean of grass ever being replenished by a congenial climate, studded by innumerable herds of cattle, each perhaps comprising from 2000 to 4000 head, and after some days he would probably get satiated with the sight of so many cattle, albeit they are splendid beasts the sires of which are English pedigree-bred (Fig. 2). He would appreciate the curiously exhilarating and pure air; the sense of real fatigue comes but rarely in spite of hard travelling. He would admire the marvellously healthy-looking condition and cleanly and picturesque appearance of the cattle, due to careful breeding and selection of stock, and above all to the fact that every moment of their life day and night is spent in the open air. The whole camp is, in short, one stupendous example of the open-air life. It not only supplies abundance of good pasture and water but it provides also a continual supply of fresh pure air which effectually guards the cattle from those diseases to which they are prone. Nothing could be more striking in favour of open-air treatment than the immunity from tuberculous disease which cattle share when their life is lived entirely in the open. There is no such thing as a stall-fed beast on the great grassy camps of the *estancia* and the tubercle bacillus finds such an environment uncongenial to its growth and development. As the towns or cities are approached so does the environment grow favourable for infection and the figures giving the returns of cases of tuberculosis amongst cattle admitted at the freezing factories (*frigoríficos*) in the towns, as against the returns of those killed at the preserving factories (*saladeros*) situated up country and in convenient proximity to the camp, are interesting in this connexion.

TUBERCULOSIS FIGURES (CATTLE) IN THE ARGENTINE 1903-1907 INCLUSIVE.

	Number of cattle.	Number affected with tuberculosis.	Percentage tuberculosis.
1903.			
Freezing establishment (frigoríficos) ...	230,095	646	0·29
Preserving factories (saladeros)	202,082	5	0·002
1904.			
Freezing establishment (frigoríficos) ...	307,808	2000	0·64
Preserving factories (saladeros)	235,735	14	0·005
1905.			
Freezing establishment (frigoríficos) ...	520,166	7760	1·49
Preserving factories (saladeros)	330,534	44	0·01
1906.			
Freezing establishment (frigoríficos) ...	564,171	6212	1·10
Preserving factories (saladeros)	285,048	89	0·03
1907.			
Freezing establishment (frigoríficos) ...	558,578	5604	1·00
Preserving factories (saladeros)	392,608	192	0·04

Our Commissioner was supplied with the above figures by an official at the offices of the Ministry of Agriculture with whom he had an interesting interview on this question. They show a highly favourable contrast with those recording the number of cattle affected by tuberculosis in this country. Official returns, in fact, show that at least a fourth, and probably more, of the cattle in England are affected with tuberculosis. But the experience again in this country is that immunity is most enjoyed by the breeds that are less domesticated—that is to say, by those cattle which live an outdoor life.

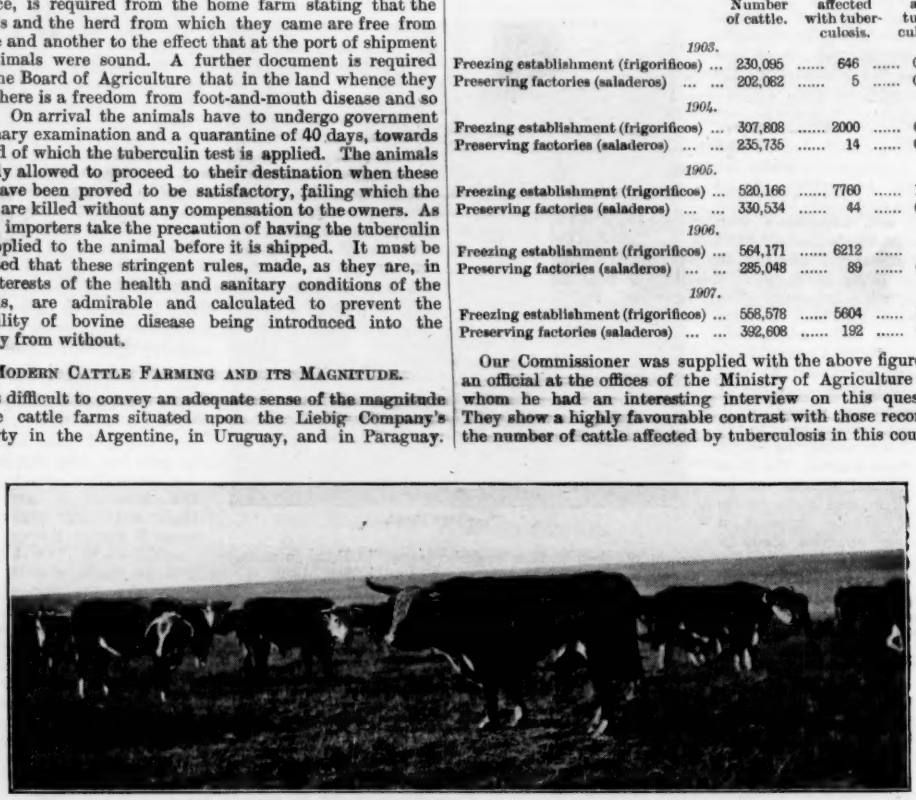


FIG. 2.—A group of Hereford bulls bred on the *estancia* from British pedigree stock.

THE METAMORPHOSIS OF GRASS.

The vast camps furnish the arena for the metamorphosis of their prolific grasses into animal substances. For this great synthetic process the bovine machine requires nothing more than grass, water, and air, and of these the supply is

never failing. Man has simply to provide this machine, keep it fed, clean, and within control. At present he is acquainted with no other method of converting grass into meat except through the channel of an animal organisation. He is bound to employ a physiological rather than a purely chemical process, and so the sentiment which is repugnant to the notion of breeding life ultimately to destroy life must for a while receive no consideration. Milk must be produced in the same way, for as yet no chemistry has been evolved which has enabled anyone to put the elements of milk together from grass so that it should be identical with the product of the lacteal gland. As with milk, so with meat; it can only be synthetically produced by the processes involved in animal life.

We have already referred to the careful attention which the Liebig Company has given to the question of improving the breed of cattle, the greater part of which sooner or later and in some form or other are destined for human food. The results are satisfactory and they compensate amply for the expensiveness of such an admirable policy. The yield of products is not only increased but the quality of them is considerably improved—a matter of distinct importance when the supply of animal food materials is a principal object. When the total acreage of the Liebig farms is taken into account, coupled with the enormous herds feeding thereon, some conception of the grass-yielding value of the pasturage is gained. Apart from sheep the stock of cattle at the present time is about 250,000, which are distributed over 1,250,000 acres of grass. On this estimate the allotment to each animal is about five acres of pasturage. The average daily amount of grass consumed by one animal is 88 pounds; a herd of 250,000 would therefore consume per diem 22,000,000 pounds of grass, or approximately 10,000 tons. The yearly consumption of grass thus would mean not far short of 4,000,000 tons. The composition of pasture grass according to the average of a large number of analyses is as follows:—

	Per cent.
Water	80·00
Proteins with a small quantity of nitrogenous extractives*	3·50
Fat	0·80
Carbohydrates	9·70
Fibre	4·00
Mineral salts	2·00
Total	100·00

* N × 6·25.

This means for a herd of 250,000 head of cattle per year a food yield in the form of grass of the following quantities of its individual solid constituents:—

	Tons.
Protein or flesh-forming substances	140,000
Fat	32,000
Carbohydrates	388,000
Fibre	160,000
Mineral salts	80,000
	800,000
Balance due to 80 per cent. water in grass	3,200,000
Total	4,000,000

These quantities are prodigious and they illustrate the increase which the land brings forth. Similarly, the annual amount of water consumed, based on the fact of one animal requiring 30 litres per day, would amount to 700,000,000 gallons per annum for the herd. These figures will convey some idea of the scale on which cattle farming is carried on in the Argentina and neighbouring states, but after all they refer only to the stock of one company, which, however, is the largest stock held, as it is the finest bred, by an individual concern. Altogether the cattle population of the Argentina is nearly 26,000,000 and in the Uruguay over 6,000,000 head. The Argentine, Uruguay, and Paraguay republics are, indeed, immense fodder-yielding tracts and the metamorphosis of grass proceeds steadily, surely, and uninterruptedly day by day on a colossal scale. There are occasions when the ordinary grass is supplemented by "alfalfa," a rich clover corresponding to our lucerne and containing a good proportion of nitrogenous food. It is well that every inch of this vast machinery is watched with care and that the best energy is devoted to the quality and purity of its products, for obviously the well-being and health of millions of consumers are concerned. Such is the case, at any rate, on the Liebig estates and in the factories according to the inquiries of our Commissioner, and to his account of the operations carried out on the *estancia* and in the factories of which he was an eye-witness during the season which closed last June.

THE ESTANCIA.

There is little to be said which can be regarded as of direct medical interest in connexion with the conduct of affairs on the *estancia*. As has already been stated, the *estancia* is a large grass farm presided over by the *estanciero* who is responsible to the company for the management and rearing of the cattle on the farm. Altogether the Liebig Company owns seven *estancias* in Uruguay, ten in Argentine, and nine in Paraguay. Besides these there are 10 others which are rented. Altogether the pasturage is spread over some 2000 square miles of country. The largest *estancias* represent an area each of from 74,000 to about 100,000 acres. In round numbers that is about 116 and 160 square miles in extent respectively. The area of some of the farms exceeds therefore that of the Isle of Wight, which is 145 square miles; others are equal in area to the whole county of London. Their topography and distribution will be seen from the large maps (Figs. 3 and 4). In Fig. 5 a diagram is given showing the area of the farms compared with Kent and Surrey. They are situated more or less on country which is contiguous to the Uruguay river which empties into the river Plate above Buenos Ayres. The soil is wonderfully fertile and the whole is an immense watershed. It has been said that the water poured into the Atlantic by the Parana and Uruguay rivers which culminate in the estuary known all over the world as the river Plate exceeds in volume that of the whole of the rivers of Europe put together. In Fig. 6 is seen a diagram comparing the volume of water in the Uruguay and Thames and also their respective lengths. The question of a pure and abundant water-supply, as well as a navigable water-way is, of course, of the first importance to the cattle-rearing industry. The existence of a wonderful water-supply and the fact of a seasonal rainfall being unfailing in the Argentine may be regarded as the chief factors which have contributed to the agricultural and farming success of the country. Later we shall deal with the question of the purity of the supply of water used in the factories of the Liebig Company, for our Commissioner secured various samples which have since been submitted to analysis.

Without entering into the precise details of *estancia* life (and they are full of interest to the student of natural history and of anthropography, as well as to the artist and the sociologist) it may be said shortly that the *estancias* supply a stock of cattle which are collected as these attain maturity and as occasion requires them for meeting the demands of the factories. The selection of the beasts for the purpose which is based upon their condition is an interesting and thrilling spectacle. The cattle scattered over an immense area of land divided into "potreros" or large fenced-in pasture tracts are brought together by the combined efforts of the gauchos, mounted peons, or peasants, until at length a "rodeo" is established—a collection of beasts, that is, averaging some thousands of head. The work of selection is then begun and it entails considerable skill and horsemanship to separate the animals judged to be ready for slaughter. The separation complete, the next step is to drive the animals to the factory. This may mean a score or even a hundred miles' journey through the country which in some parts, however, is relieved by railway transit. It is interesting to observe that on no account are the animals allowed to develop fatigue on this journey; they have ample rest in the "corrals" on the way and the daily drive never exceeds 15 miles. In Fig. 7 is seen a herd at rest. This precaution is of special importance, since it is well known that fatigue produces fatigue products which render the meat not only inferior in flavour but which may give it toxic qualities also. Besides which the animals, if unduly strained by a long journey, lose considerable weight.

THE FACTORY AND SLAUGHTER-HOUSES.

The killing season commences in January or at the end of December and ends in June. During this time the factories are in constant activity and as many as 1500 head of cattle a day are killed at each place. In 1907 the total number of animals slaughtered was 252,630 head. The Liebig factories are situated at Fray Bentos and at Colon, pictures of which appear in Figs. 8 and 9 respectively. The

FIG. 3.—Map of the *estancias* on the Liebig Company's estates in Uruguay and Argentina.

former was the original factory of the Liebig Company. Fray Bentos is in Uruguay, on the east bank of the river of that name and about 100 miles from Buenos Ayres. Colon is about 80 miles higher up the same river, but is on the west bank, and is consequently in Argentina, in the department known as Entre Rios, a tract of country bounded on the east side by the Uruguay river and on the west and south by the Parana. The fact that the Colon factory was acquired comparatively recently, and after a considerable experience as to the requirements of the business had been accumulated at the earlier factory at Fray Bentos, necessarily rendered the former an advance on the latter in regard to accommodation, design, equipment, and machinery. In principle, however, the processes concerned in the slaughtering of the animals and their resolution into manifold products are substantially the same at both places. Before they reach the place of slaughter the cattle are carefully examined by the veterinary surgeon who is required to certify that only such animals are allowed to be killed as appear externally free from all disease. At Fray Bentos this work of inspection is carried out by an expert appointed by the company. At Colon this inspection is conducted by a representative of the Cattle Inspection Department of the Ministry of the Argentine Republic, who certifies each month that he has not allowed any animals to be killed that he did not find to be externally sound and free from all isease. The animals are killed by severing the spinal column at the back of the neck by means of a sharp two-edged knife shaped something like a bricklayer's trowel. The body is then conveyed quickly on a trolley which is placed over a gully. Here the throat is cut and the blood flows away down the gully. The blood is subsequently recovered and dried into a fine powder which is used as the basis of a valuable manure. After the animal has been so bled it is flayed. The carcass is then stripped of the organs, disembowelled, slung up, divided from end to end, and dressed. The scene can hardly be described as picturesque, especially when the rate of killing is often about two beasts per minute but the precautions taken to render it as inoffensive as possible are worthy of remark. The absolutely essential element which is required to keep such a slaughter-house clean and free from offence is here in superabundance. Hose-pipes delivering a constant and unstinting supply of the clean filtered water from the enormous river which flows by the factory are available everywhere and are continuously in use. The floors are tiled and fluted and set in such a way that flushing becomes a very effectual method of removing offensive materials. Even in the height of the season and in spite of the slaughter of, say, 1500 animals a day, the walls, floors, and surroundings present the cleanly appearance of a large model dairy. Thus, instead of a scene of carnage and shambles it is more like a well-appointed butcher's shop. Within ten minutes or so of its death the animal is divided by skilful butchers into the various parts and before the animal heat has dissipated. During these operations at the Fray Bentos (Uruguay) factories a careful inspection of the parts of the carcass is made by a staff of properly qualified men appointed by the company itself. These have to certify that a thorough examination of all the cattle killed was made and that only sound good meat was allowed to be converted into meat products and that any carcass or organ showing disease was disposed of in other ways. At the Colon (Argentine) factories, as already mentioned, an inspector is sent from the Ministry of Agriculture of the Argentine Republic who attends continuously and issues a monthly report. It is his duty to examine the carcasses of the cattle killed in the factories during each

FIG. 4.—Map showing the *estancias* of the Liebig Company in Paraguay.

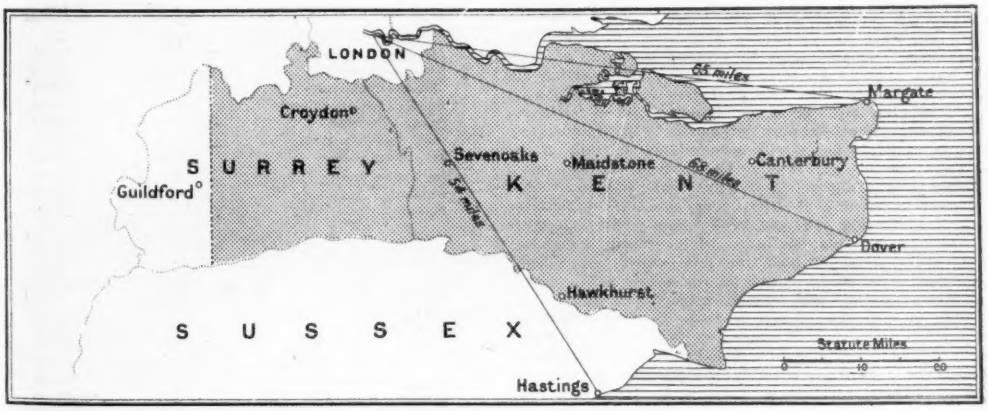


FIG. 5.—Map showing size of the Liebig Company's cattle farms compared with Kent and Surrey.

month and to see that only such carcasses as are free from all disease are allowed to be converted into food products. He further is bound to certify that every carcass showing any indication of disease whatever has been entirely disposed of for manurial purposes and in a way which prevents their consumption by human individuals. The regulations enforced in the slaughter-house in regard to the workpeople are modelled on similar sanitary demands. It is the duty of the foreman to report to the management any breach of the factory regulations on the part of any of the workpeople. He further must satisfy himself by inspection that the hands of the workpeople are absolutely clean and that no person suffering from any cutaneous disease is allowed to enter any department of the factory of which he is in charge. Finally, the medical inspector is authorised to inspect the workpeople employed at any time he may choose in order to convince himself that no breach of sanitary rule is committed. Our Commissioner made continual tours of the slaughter-houses, and at no time, he reports, was there any evidence other than that the sanitary regulations were being properly and rigidly enforced.

In the ultimate disposal of the various parts of the carcass of the freshly slaughtered animal there is nothing left to waste. At every stage utilisation is aimed at and every part is resolved into a material which is applied in one way or another to a useful purpose. This is one of the facts about this particular industry which invariably impresses the visitor. The metamorphosis of grass, to revert to an expression already used, is indeed a wonderful process, culminating as it does in the harvesting of such a variety of products. First may be mentioned the hides which with due skill and care bestowed on their preparation are an obviously valuable asset; then come the fatty portions, a proportionally big yield which may be directly consigned for food purposes (butter substitutes, for example), or for the manufacture of soap, glycerine, and so forth; next the bones for the preparation of bone meal, or the smaller ones which are used for preserving the shape of certain garments—e.g., corsets—then the sinews, a source of glue of various grades, the scraped and cleaned intestine for sausage skins, the blood for producing a fine dry powder which supplies the elements essential in a fertilising material for agricultural purposes, and so forth. Incidentally there are residues necessarily accumulated in many of the processes carried out which nevertheless provide, when suitably treated, a material of value, and hence is returned to the soil in the form of a fertilising agent to complete the cycle of adaptation and usefulness. Separately treated are the various portions of meat which reach the public in the shape of corned beef, the processes involved being conducted with every regard to wholesome requirements, and then there are the tongues preserved in jelly which provide, in the view of a very large class of consumers, an excellent, sound, and appetising food. In connexion again with this class of food a periodical system of examination is kept in force and monthly reports are issued certifying that all the meat and tongues entering the factory are carefully examined and nothing is passed except such as is of good fresh quality. A similar inspection is made by the veterinary surgeon who periodically certifies that only sound good meat is allowed to be converted into food products and that in the event of carcasses or organs showing any disease they are at once consigned to the manure works where, it need hardly be said, the processes are drastic enough to destroy all germs of disease.

WATER-SUPPLY.

We have incidentally referred in the above account of the slaughter-houses and the processes conducted there to the great importance of a pure and plentiful water-supply being at hand. The meat-rearing industry would be completely paralysed without a generous supply of water at hand. Apart altogether from the question of rainfall which drops fatness on the land, furnishing thereby a plentiful pasturage, water is a first necessity in connexion with manufacture and particularly with a manufacture which deals exclusively with the preparation of animal foods from raw animal materials. A plentiful and trustworthy water-supply spells success but a shortage means disaster. The unfailing water resources of the Argentine and neighbouring States are the magnificent asset of these countries, which not only renders agricultural enterprise a commercial success but adds to this success by qualifying it by the application of hygienic standards. The supply of water is practically illimitable, but a question of equal importance, and which may be discussed next, is obviously that of its quality. Before giving the results of the analysis of samples taken by our Commissioner at both factories of the raw river water and the water after filtration, it may be pointed out that the company itself causes periodical analysis to be made, and every month a certificate is issued which insures that the quality is pure and good and fit for human consumption and for the preparation of the various food products. The filters are constructed on approved lines and are of large

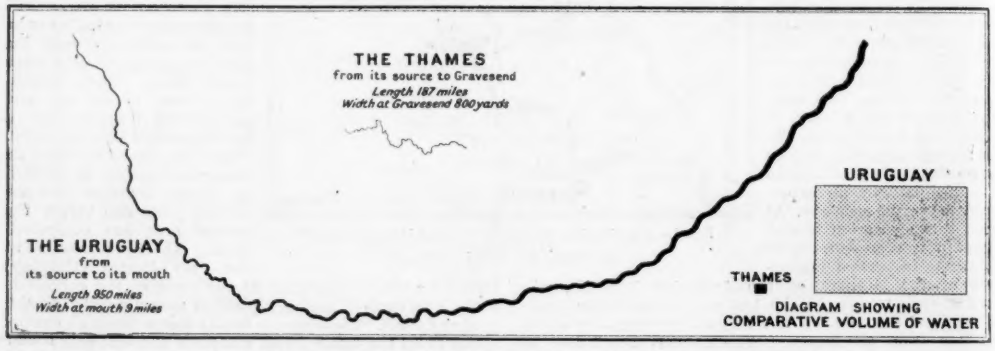


FIG. 6.—Diagram comparing volume of water in the River Uruguay and the Thames.

WATERS FROM COLON.

	Grains per gallon. Filtered.	Unfiltered.
Free ammonia	Trace.	*Nil.*
Albuminoid ammonia	0·0056	0·0056
Nitrogen in nitrates	0·0056	0·0196
Chlorine in chlorides	0·2800	0·2800
Equal to sodium chloride	0·4600	0·4600
Oxygen absorbed	0·0330	0·0330
Total dissolved solids	4·4800	5·3200
Suspended matter	0·2590	1·0500
Inorganic ,,	0·1820	0·8050
Organic ,,	0·0770	0·2450
Phosphoric acid (P_2O_5)	Traces only.	Traces only.

WATERS FROM FRAY BENTOS.

	Grains per gallon. Filtered.	Unfiltered.
Free ammonia	Trace	0·0028
Albuminoid ammonia	0·0056	0·0070
Nitrogen in nitrates	0·0280	0·0280
Chlorine in chlorides	0·2800	0·2800
Equal to sodium chloride	0·4600	0·4600
Oxygen absorbed	0·0380	0·0460
Total dissolved solids	5·0000	5·4000
Suspended matter	0·3640	0·4900
Inorganic ,,	0·2170	0·2380
Organic ,,	0·1470	0·2520

FIG. 7.—A herd at rest.

FIG. 8.—The factory at Fray Bentos. The factory covers 62 acres of ground. River Uruguay at this point is 4½ miles wide. Pileta Camp at background. The small low white building in foreground is the original factory.

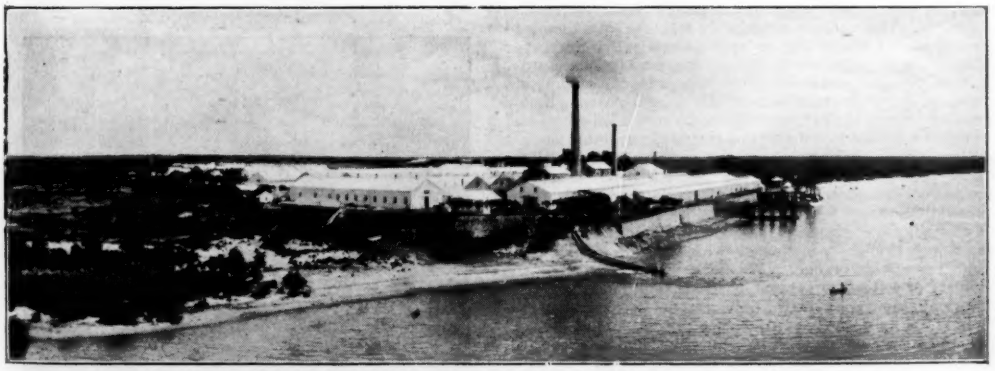


FIG. 9.—The new factory and model village at Colon, Entre Rios.

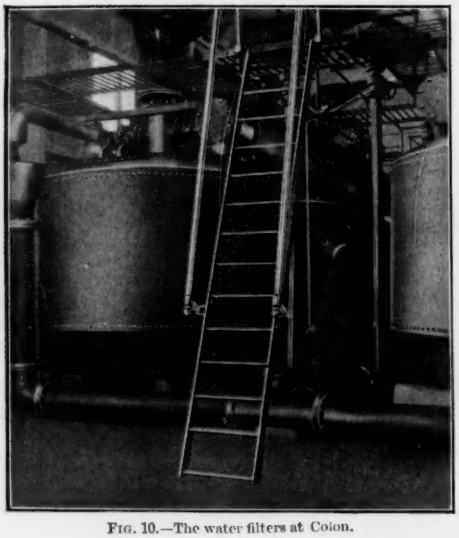


FIG. 10.—The water filters at Colon.

capacity, having regard to the enormous quantities of water required for cleansing and manufacturing purposes. A picture of one of the filters at Colon is given in Fig. 10. The filtering material is crushed pebble and sand. Subjoined are the analyses of No. 1 water from Colon (*a*) unfiltered, (*b*) (filtered); and No. 2 water from Fray Bentos, (*a*) unfiltered, (*b*) filtered.

As already stated, both factories derive their supplies from the Uruguay river which pours a colossal volume of water into the River Plate, Fray Bentos being about 100 miles from the estuary and Colon about 80 miles higher up. The unfiltered water in each case represents raw river water taken from a spot in the river near the intakes. It will be seen that the samples, though taken at spots many miles apart, show very little variation in regard to their composition or quality. The water is remarkably soft, the total dissolved mineral matter amounting to approximately five grains per gallon. As to evidences of organic impurity there are none, the total nitrogen contained in free ammonia, the albuminoid ammonia, and the nitrates respectively being a quite negligible quantity. Again, the oxygen consumed is very microscopic and the figure recorded is probably due entirely to a minute amount of plant débris. In short, the water is of excellent quality for all purposes, not excluding the refined requirements of human consumption. For manufacturing purposes it is splendidly adapted and must smooth the way very considerably for all the engineering methods employed in the factory. The water is slightly opalescent which is due to very finely divided particles of clay. We have pointed out that the quantity of water for general purposes is illimitable and to this may now be added the fact that its quality leaves nothing to be desired, even having regard to the delicate purposes for which, as we shall next point out, it is required.

LIEBIG'S EXTRACT OF MEAT (LEMCO).

Interesting and important as is the utilisation of the various animal products and foods enumerated in a preceding paragraph and the processes by which they are rendered valuable, we come next to consider the methods by which the extract of meat, as originally directed by Liebig, is made. In view of the immense popularity of this preparation and of the still increasing demand for it there can be little doubt that extract of meat fills an important gap in the common dietetic wants of the present day. In approaching, therefore, the questions which a consideration of the methods of its preparation and of its composition and physiological action raises we are dealing with perhaps the most important branch of the subject of the present inquiry. First, then, in regard to the preparation of the extract. In principle the lines first laid down by Liebig which he considered essential to success are still followed by the Liebig Company, who to secure to the consumer an article produced in accordance with his directions have distinguished it by the name of "Lemco," but it is obvious that an experience of nearly 50 years would lead to sundry improvements in the manufacture being introduced, and certain details have, as a matter of fact, been modified with the view, and with the actual result, it may be added, of producing what may be regarded as finality in regard to the quality of the product. Nevertheless, the process is perfectly simple. In the first place, the finest portions of meat are selected and these are reduced to the condition of mince-meat by machines especially constructed for the purpose. The meat mass is then transferred to large pans or kettles, each capable of holding four tons, in which it is left with its own weight of pure filtered water. After the addition of more water the mixture is carried to a temperature by means of steam jackets, the exact degree being determined by a consideration of the condition of the meat. Generally the temperature is between 80° and 94° C., but it is never allowed to exceed the last figure as otherwise the extract would contain gelatin. During this time fat continuously rises and is skimmed off. The more or less clear liquor is then run off and the work of concentration is commenced. Fat is again skimmed off until at length the watery extract or soup is practically free. The fat so skimmed off is of the very finest description, being that which occurs in the interstices of the meat cells. Concentration proceeds again in a vacuum vessel and at a certain point the liquor is filtered, concentrated again, and filtered again through a battery of filters known as a filter press, an illustration of which in given in Fig. 11. The final stage is reached when the now

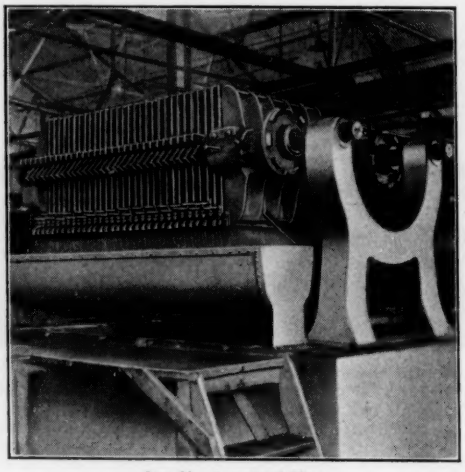


FIG. 11.—An extract filter.

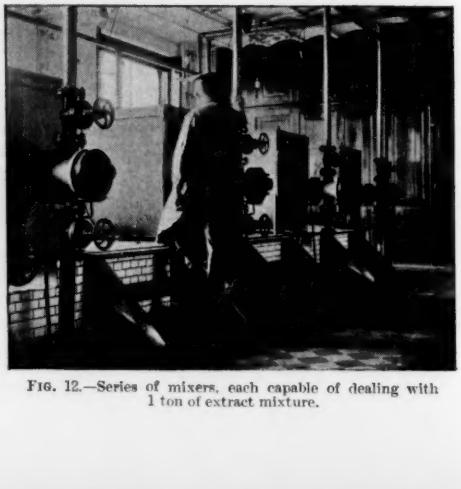


FIG. 12.—Series of mixers, each capable of dealing with 1 ton of extract mixture.

more or less syrupy liquid is placed in a special concentrator provided with a revolving worm and through which steam is passing. It is very essential if complete uniformity in regard to consistency and composition of the extract is aimed at that during the last stages of concentration the mass should be continually stirred. The treacly mass is then run off while hot into tin canisters of varying capacity and is ultimately dispatched to the distributing factories in Europe for subdivision into small parcels in the form in which the public receive it. It may be added that the extract is made and finished within three days of the death of the animal from the flesh of which it is derived. Such a proceeding must receive the entire approbation of all upholders of hygienic methods, for any time lost in the preparation of concentrated meat foods means time gained by the countless deteriorating agencies which find animal food a particularly congenial field wherein to multiply and to produce baneful products. Once, however, the concentration is secured extract of meat is, in its nearly solid state, no longer a culture medium. The process of extraction from beginning to end is subject to the supervisions of a chemist, and periodical analyses are made with the view of keeping the product constant in composition and quality. At both the Fray Bentos and Colon factories there are well-appointed chemical laboratories equipped with a staff of qualified analytical chemists. Before also the extract reaches the market from the distributing factories its composition and quality are certified by a scientific board. Amongst the scientific men serving in this capacity were Baron Liebig himself in 1865, his son and Professor Pettenkofer in 1872, and later Dr. Karl Voit, Dr. Max Rubner, Dr. Max Gruber, and Sir Henry Roscoe, the three last exercising their control at the present time. There is also accommodation given for biological work. It will be seen that the above processes effect the extraction of the uncoagulable portions of the meat which are soluble in water and that therefore the residue remaining consists of the fibrin and albumins in a more or less toughened state. The fat, as has already been stated, is skimmed off from time to time and filtration finally removes any traces left. It should be remarked, however, that the meat substance is in contact with hot water for some time and in the presence of the normal acids of muscular tissue. It follows that a certain amount of hydrolysis of the albumins takes place and that, therefore, to some extent part of the meat itself enters into the extract in the form chiefly of albumose and peptone. The extent to which this is the case will be seen from a number of analyses given below which were made in THE LANCET Laboratory. Samples for this purpose were taken by our Commissioner himself from both factories from the machine in which the final concentration is made.

TABLE I.—*Analysis of "Lemco" taken from the Liebig Companies Factories at Colon and Fray Bentos in South America.*

	Colon. Per cent.	Fray Bentos. Per cent.
Moisture	15·80	17·55
Mineral salts	26·37	19·38
Organic matter	57·83	63·07
Total	100·00	100·00
Total nitrogen	9·70	10·64
Albumose	12·59	14·08
Peptone	5·61	5·76
Total protein	18·20	19·84
Creatine and creatinine	14·28	14·28
Insoluble matters	*Nil.*	*Nil.*
Fat	Trace.	Trace.
Sodium chloride	3·02	2·68
Phosphoric acid (P_2O_5)	9·02	7·86

The following sample of "Lemco" was also secured by our Commissioner at the distributing factory in Europe. Analysis of this sample gave the results shown below.

TABLE II.—*"Lemco" from the Distributing Factory.*

	Per cent.
Moisture	17·90
Mineral salts	19·36
Organic matter	62·74
Total	100·00
Total nitrogen	10·07
Albumose	11·67
Peptone	5·02
Total protein	16·69
Creatine and creatinine	10·00
Insoluble matter	0·40
Fat	Trace
Sodium chloride	2·91
Phosphoric acid (P_2O_5)	7·15

Finally, samples were purchased in the open market at various shops in London and on submitting them to analysis the following results were obtained:—

TABLE III.—*Samples of "Lemco" Purchased at Various Shops in London.*

—	1	2	3	4	5	6	7	8	9	10
	%	%	%	%	%	%	%	%	%	%
Moisture	20·73	20·63	19·96	19·70	17·12	19·86	21·50	18·36	21·13	20·23
Mineral salts	20·94	20·29	20·00	18·35	20·45	21·08	19·23	26·30	19·16	20·71
Organic matter	58·33	59·08	60·04	61·95	62·43	59·06	59·27	55·34	59·71	59·06
Total	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Total nitrogen	9·82	10·09	9·84	10·22	9·52	9·91	11·62	9·48	9·45	10·02
Albumose	10·14	11·21	12·37	13·79	10·80	11·93	14·26	8·52	10·84	11·84
Peptone	5·50	4·61	4·50	5·56	4·47	4·51	4·24	5·60	4·37	3·34
Total protein	15·64	15·82	16·87	19·34	15·27	16·44	18·50	14·12	15·21	15·18
Creatine and creatinine	11·00	10·00	10·00	10·00	11·00	12·50	10·00	12·50	12·50	9·00
Insoluble matter (fibrin, albumin)	0·33	0·56	0·88	0·25	0·66	0·63	0·65	0·63	0·51	0·87
Sodium chloride	2·68	3·28	2·61	3·08	2·81	3·02	3·15	5·69	3·00	3·92
Phosphoric acid (P_2O_5)	6·70	5·37	5·41	4·55	5·31	5·52	6·11	3·06	6·30	6·13

A careful comparison of the figures in Tables II. and III. shows that the samples of "Lemco" purchased on the open market are practically identical in composition with the sample obtained directly from the distributing factory. The small differences which do exist are due to slightly varying amounts of water and are bound to occur owing to the hygroscopic nature of the extract. It is clear from these analyses

that the extract reaches the public identical in composition and quality with that of the sample obtained directly from the distributing factory. The ranges in composition are as follows :—

Moisture	From 17·12 per cent.	to	21·50 per cent.	
Mineral salts	,, 18·35	,,	26·30	,,
Organic matter	,, 56·34	,,	62·43	,,
Total nitrogen	,, 9·48	,,	11·62	,,
Albumose	,, 8·52	,,	14·26	,,
Peptone	,, 3·34	,,	5·60	,,
Total proteins	,, 14·12	,,	19·34	,,
Creatine and creatinine...	,, 9·00	,,	12·50	,,
Insoluble matter	,, 0·25	,,	0·88	,,
Sodium chloride	,, 2·68	,,	5·69	,,
Phosphoric acid (P_2O_5) ...	,, 3·06	,,	6·70	,,

powder represents about four times its weight of raw meat, because raw meat contains generally more than three-fourths of its weight of water. A definite quantity of this powder when incorporated with the extract of meat forms what is known as "Oxo," Fig. 12 illustrating a series of mixers for the purpose, each capable of dealing with one ton. As to the quantity so added, this appears from the analyses made in THE LANCET Laboratory (Table IV.) of a number of samples of "Oxo" which were purchased in the open market, as with the "Lemco" samples. The insoluble matters there shown practically represent, except for a small quantity of insoluble flavouring agents present, the amount of dry beef powder added. It lies between 4·91 and 7·24 per cent. This represents the addition of 19·64 and 28·96 per cent. respectively of fresh raw meat.

It is interesting to compare the foregoing results with the analysis made of a sample of "Oxo" obtained by our Commissioner at the distributing factory directly from the filling machine :—

TABLE IV.—*Analyses of "Oxo" Purchased on the Open Market.*

—	1	2	3	4	5	6		8	9	10
	%	%	%	%	%	%	%	%	%	%
Moisture	42·25	40·40	40·28	40·49	40·28	41·88	40·98	42·10	41·79	42·46
Mineral salts	17·25	18·31	18·00	18·12	16·52	17·85	18·71	18·53	18·46	16·53
Organic matter	50·50	41·29	41·72	41·39	43·20	40·27	40·31	39·37	39·75	41·01
Total...	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Total nitrogen	6·52	6·40	6·44	6·79	6·51	6·58	6·66	6·88	6·51	5·40
Albumose	10·58	11·74	11·28	11·42	10·19	11·83	13·48	9·77	10·01	10·30
Peptone	2·31	0·68	1·28	1·30	1·76	2·38	0·78	2·37	2·00	1·08
Total protein...	12·89	12·42	12·56	12·72	11·95	14·21	14·26	12·14	12·01	11·38
Creatine and creatinine	5·00	4·00	5·00	5·00	4·00	5·00	4·00	5·00	4·80	5·00
Insoluble matter (fibrin, albumin, and fat)	4·91	5·03	7·24	5·19	6·54	5·21	6·52	5·98	5·64	8·32
Sodium chloride	7·70	8·90	8·74	8·90	8·75	8·48	9·72	8·60	9·12	7·38
Phosphoric acid (P_2O_5)	2·80	3·55	2·46	2·65	4·05	2·81	3·55	3·28	3·12	4·05

As a rule the samples taken directly from the producing factories are, it will be noted, slightly more concentrated than the market samples. Extract of meat will readily absorb moisture during transit in a damp atmosphere. In addition, the raw material itself, that is to say the meat, is seldom absolutely constant in regard to the amounts of its individual constituents. Perhaps the most constant figures in regard to the analysis of meat extract are the nitrogen, 10 per cent., and the creatine and creatinine, which amount to 10 per cent. also. It may be pointed out that the moisture in the above table represents in reality the loss sustained on drying at 120° C. This loss probably includes a small percentage of volatile organic matters.

Before proceeding to discuss the value of extract of meat from a nutritive point of view we may refer to a modified product called "Oxo," which is extract of meat or "Lemco" plus an addition of fine dry beef powder. The preparation of this powder is conducted with special care, particularly as regards reducing the meat to a very finely divided state. The best lean parts from the loins are cut up, minced, and slowly dried on steam-jacketed drying tables, after which the dry beef is ground and passed through exceedingly fine sieves and mixed ultimately with a definite proportion of extract. Our analysis of the powder was as follows :—

BEEF POWDER USED IN "OXO."

	Per cent.
Moisture...	9·20
Mineral salts	4·00
Organic matter	86·80
Total	100·00
Nitrogen	14·00
Fat	8·00
Sodium chloride	0·02
Phosphoric acid (P_2O_5)	2·90

In regard to this analysis, it is important to note that the

TABLE V.—*Analysis of "Oxo" obtained from the Distributing Factory.*

	Per cent.
Moisture	39·71
Mineral salts	18·04
Organic matter	42·25
Total	100·00
Total nitrogen...	6·63
Albumose	11·32
Peptone	2·18
Total protein	13·50
Creatine and creatinine	4·70
Insoluble matters	4·61
Fat	Traces.
Sodium chloride	8·46
Phosphoric acid (P_2O_5)...	4·88

There is further a preparation known as "Nursing Oxo," which is particularly intended for use in the sick room and contains, as our analysis given below shows, a comparatively high proportion of proteins derived from the peptonisation of meat. For the preparation of this adjunct pure beef is cut up and put into jacketed cylinders with about 30 per cent. of water. The cylinders are then closed and steam is admitted into the outer jackets. The liquid after being treated in this way for some time is then run off, filtered, and concentrated. It is rich in albumose, as the following analysis shows :—

ANALYSIS OF PEPTONE.

	Per cent.
Moisture	29·82
Mineral salts	8·33
Organic matter	61·85
Total	100·00

Total nitrogen	10·30
Albumose	28·22
Peptone	*Nil.*
Total protein	28·22
Creatine and creatinine	5·00
Insoluble matters	*Nil.*
Fat	Trace.
Sodium chloride	1·37
Phosphoric acid (P_2O_5)	4·00

The addition of this peptonised meat preparation to "Oxo" is therefore calculated to add considerably to its nutritive value, and as a matter of fact the analysis of "Nursing Oxo" gives the following results which show a considerable proportion of proteins :—

ANALYSIS OF "NURSING OXO."

	Per cent.
Moisture	23·27
Mineral salts	15·73
Organic matter	61·00
Total	100·00
Total nitrogen	11·35
Albumose	20·28
Peptone	13·23
Total soluble protein	33·51
Insoluble matters	5·83
Creatine and creatinine	4·00
Sodium chloride	4·80
Phosphoric acid (P_2O_5)	4·38

It is directed that a teaspoonful of "Nursing Oxo" should be added to a breakfast-cupful of boiling water for the preparation of a nourishing beef-tea. A teaspoonful of "Nursing Oxo" weighs about half an ounce and the capacity of an ordinary breakfast-cup may be taken to be ten ounces, so that in preparing beef-tea with "Nursing Oxo" a 5 per cent. solution of the extract is enjoined to be made. Such a fluid has, according to the directions which we followed, the annexed percentage composition and it is interesting to place side by side with this the composition of beef-tea made with care from best rump steak :—

	Beef-tea made from fresh rump steak, 1 pound to 1 pint of water.	"Nursing Oxo," 1 part to 20 parts of water.
Water	97·46	95·65
Organic matters	2·01	3·42
Mineral salts	0·53	0·93
Total	100·00	100·00
Total proteins	1·50	1·96
Extractives	0·51	1·46

"Nursing Oxo" contains, therefore, at this extreme dilution more than one and a half times as much meat substances as are contained in beef-tea, an increase due to both proteins and extractives, but more particularly to the latter. It contains also the albumin and fibrin of beef which are absent in strained beef-tea. The strength of a cup of "Nursing Oxo" can, however, obviously be increased at will by adding more than a teaspoonful of the preparation to the breakfast-cup of hot water. Its preparation is both economical and simple.

MEAT EXTRACTS AND ALLIED PRODUCTS FROM A DIETETIC POINT OF VIEW.

Considerable controversy has centred round the question of the nutritive value of extract of meat and beef-tea and at the present time there is not a little division of opinion on the subject. There can be no doubt, at all events, that extract of meat is a most valuable adjunct to the dietary of both the healthy and the sick alike, but until recently little was known as to why this was so or as to the rôle which it plays as an undoubted aid to nutrition, if not, indeed, as a direct contributor to it. Whatever views may be held as to the nutritive value of the extractives of meat one thing is certain, and that is that the ingestion of meat from which these principles have been taken away places a very heavy task on the digestive organs. The extractives are, in fact, essential to the enjoyment and assimilation of the meat. The custom of preceding a meal with soup has, in other words, a strong physiological warranty. Schiff pointed out that the taking of soups, or what amounts to the same thing, extract of meat, stimulated the activity of the gastric glands and encouraged, therefore, in a remarkable way the assimilation and digestion of the solid constituents of the food which make up the balance of the meal. In his comparatively recent experiments Pawlow also demonstrated clearly that the extractives of meat are the most powerful exciters of gastric secretion that we possess and thus they serve the important dietetic purpose of assisting the appetite and of contributing to the digestion of food. Further than this, the extractives of meat as shown by Kobert are capable of removing the effects of muscular fatigue, enabling a tired muscle to become active again. This fact explains why solutions of beef extract exert recuperative effects in conditions of fatigue and act as a refreshing beverage. But meat extracts as a matter of chemical fact contain something besides extractives, though it must be admitted that these predominate. Still, modern analysis does show clearly enough that in the process of extraction a certain amount of hydrolytic action takes place and that therefore some of the albumin of the meat is converted into soluble proteins—viz., albumose and peptone—which have the same nutritive value as meat. In some instances these amount in extract of meat to nearly 20 per cent., or twice the quantity of creatinine, the chief base present. Now in the presence of the powerful gastric excitants which the extractives are admitted to be, apart from the fact that the albumoses and peptones are capable of playing the part in nutrition exhibited by proteins, a well-prepared beef extract must be, so far as its nutritive contents go, a very rapid and powerful restorative and nutrient. It has even been asserted that albumose and peptone do not simply diffuse through the intestinal wall but are taken up by the lining membrane and transformed by it as a result of the vital activity of its cells into serum albumin. The fact, moreover, that the extractives of meat are the most powerful excitants of gastric secretion that we possess justifies the addition as in "Oxo" of dry beef powder to the extract, for although it is true that this addition represents but a comparatively small measure of beef, yet the presence of extractives is calculated to secure the complete digestion of this amount. This assistance to assimilative power means that less meat is needed. As will be seen from the analytical results the average amount of *dry* beef powder added is from 5 to 6 per cent. Inasmuch as raw meat contains at least 75 per cent. of water the addition represents from 20 to 24 per cent. of raw meat. "Nursing Oxo" contains a similar addition of dry beef powder and besides about 25 per cent. of albumose, so that its nutrient value is considerable, especially having regard to the very material assistance given by the extractives to the digestive process. It will be readily understood also why milk or other comparatively tasteless food to which some extract of meat has been added should prove to be a powerful food and restorative. There is no constituent in milk which is calculated to excite the gastric secretions, and hence the addition of the stimulating extractives of beef is a decided dietetic advantage, especially for the sick and poorly nourished.

In discussing this stimulating effect of beef extractives on the digestive process it is interesting to compare the action of alcohol, and the comparison on the whole is an unfavourable one for alcohol, for while the risks attending the consumption of alcohol are well known there is comparatively no risk connected with the use of meat extract for dietetic purposes. Alcohol is, of course, a poison for obvious reasons, but it would be impossible to include meat extract in the same category, and yet in some ways it may be substituted for alcohol for similar dietetic objects. Alcohol is a true stimulant inasmuch as it spurs the heart to the performance of more work. The stimulating effect of meat extract, on the contrary, is confined to the digestive organs, and so the heart not being pushed to do more work does not show those signs of depression after partaking of meat extract which follow the imbibition of alcohol. In a word, the temporary benefit obtained by the stimulating effects of alcohol receives an undesirable compensation in the fact of cardiac depression ensuing. No such evil follows the use of meat extract, which, on the contrary, as has already been pointed out, helps to overcome fatigue

by restoring a tired muscle to activity. The chemistry of meat extract has by no means even now been exhausted, and there are still many constituents present in it which have not been definitely recognised and yet to which it may owe in part its valuable dietetic properties. Hence the arguments which have been put forward against the dietetic use of extract of meat have often received a crushing reply from the favourable results gained in actual practice. The fact, at all events, cannot be ignored that beef extract supplies a distinct human need, as is evidenced by its continued popularity for dietetic purposes for both the sick and the healthy and by the increased demand which has taken place for it during recent years. In view of this demand it is all the more satisfactory that, coming back to the chief purpose and aim of the present inquiry, our Commissioner as the result of his visit is able to report that the concentrated meat products of the Liebig Extract of Meat Company are prepared in strict pursuance of a policy which requires that every process from beginning to end shall be placed under scientific control and be made to comply with a hygienic *régime* which leaves no room for adverse criticism. The confidence of the management in the adequacy of the scientific and sanitary measures adopted at both factory and farm is such that invitations are cordially extended to medical men who may be visiting the Argentine to include in their travels an inspection of the arena of this great and important industry.

MEDICINE AND THE LAW.

The Use of Cocaine in the Extraction of Teeth.

A CASE of considerable importance to the dental profession was tried before Judge Ingham at Evesham county court on Oct. 17th. Thomas Abbott Stanley, auctioneer's clerk of Pershore-road, Hampton, Evesham, claimed from Walter Joseph Craven, druggist, Bengeworth, Evesham, £20 damages for injury to the plaintiff through the negligence of the defendant, his servant or assistant, in the extraction of a tooth and in the application to the gums of the plaintiff of cocaine. Mr. Hosgood appeared for the plaintiff and Mr. G. New for the defendant. It appeared that the plaintiff had a tooth extracted by the defendant's assistant who administered cocaine. Shortly afterwards the plaintiff was taken very ill indeed and was confined to his bed for over a week. He wrote to the defendant, who advertised "teeth painlessly extracted," that his cocaine had made him very ill and but for the attention paid to him by his mother and sister he (the defendant) would have had to answer a very serious charge before the court, and that Dr. D. Gordon-Evans, who had attended him, had said that if he had had a tenth of a grain more cocaine it would have killed him. The plaintiff said that the defendant's assistant Munslow poured the cocaine into a medicine glass and injected it into the gums with a syringe. He then commenced to extract the tooth but in doing so broke it in two. The witness suffered terrible pain. The assistant injected more cocaine and ultimately got the tooth out. Shortly afterwards the witness was taken ill and had to go to his mother's house where he was sick and shivered a lot. He was put to bed and a medical man was fetched, and in the meantime the witness became unconscious. He had since not been able to do his work so well as formerly and he had lost over a stone in weight. He had consulted a Worcester specialist and his nerves were still very much upset. He was charged 2*s.* for the "painless extraction." Dr. Gordon-Evans said that he found the plaintiff in a more or less insensible condition and in an extremely dangerous state and if it had gone on an hour or so more the plaintiff would have died. He was as near death as could be. The witness produced cocaine in tubes, saying that was the proper way to administer the drug and these contained the proper dose. It was not safe even for a fully qualified man to administer cocaine from an open glass, and Munslow was not qualified. It was a most dangerous and deadly drug. He thought that the plaintiff's condition was entirely due to cocaine. The plaintiff was formerly a strong, healthy man. Mr. Craven said that his assistant Munslow was a perfectly competent extractor of teeth and that he had extracted 487 teeth between Jan. 1st and August 17th. All these were "painless extracts," where cocaine was applied without a single complaint. Dr. Charles Pollard of Worcester said that cocaine was a proper drug to use in the extraction of teeth and to deaden the pain in the gums. He admitted that it was not a safe drug for an unqualified man to administer. The assistant, John S. Munslow, said that he had extracted teeth for over 20 years and had had frequent cases of "painless extraction." He only used 10 minims of cocaine in this particular case and never used more, and gave four injections. The plaintiff was in a very nervous and excited state. He had used the same glass for administering cocaine for the past year. He had always administered cocaine in the old-fashioned way and always should do so. Mr. Malven, chemist in the employ of Messrs. Parke, Davis and Co. manufacturing chemists, London, gave evidence as to the common use of the drug for extracting teeth all over the country and said he had often heard that cases of sickness arose from it. Mr. New said that the decision was of great importance to dental surgeons and others all over the country. The question was whether the administering of the drug for the purpose of "cheap painless extractions" was right and they wished the case to come before that court. His honour said that he came to the conclusion that the cocaine was negligently administered. He gave judgment for 10 guineas.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8317 births and 4312 deaths were registered during the week ending Oct. 17th. The annual rate of mortality in these towns, which had been equal to 13·3 and 12·8 per 1000 in the two preceding weeks, rose again to 13·9 in the week under notice. During the first three weeks of the current quarter the annual death-rate in these towns averaged 13·3 per 1000, and in London the mean rate in the same period did not exceed 12·1. The lowest annual death-rates in these towns last week were 3·4 in Hornsey, 5·0 in Leyton, 6·0 in King's Norton, and 6·9 in East Ham, all being suburban districts; the rates in the other towns ranged upwards, however, to 22·0 in Huddersfield, 22·4 in Swansea, 22·9 in Rochdale, and 27·4 in Bury. In London the death-rate during the week did not exceed 11·9 per 1000. The 4312 deaths from all causes in the 76 towns showed an increase of 333 upon the low number in the previous week, and included 613 which were referred to the principal epidemic diseases, against numbers declining from 1343 to 514 in the seven preceding weeks; of these 613 deaths, 430 resulted from diarrhœa, 55 from measles, 40 from "fever" (principally enteric), 32 from diphtheria, 31 from whooping-cough, and 25 from scarlet fever, but not one from small-pox. The deaths referred to these epidemic diseases during the week were equal to an annual rate of 2·0 per 1000, against a rate of 1·7 in each of the three preceding weeks; in London the death-rate from these diseases last week did not exceed 1·2. No death from any of these epidemic diseases was registered last week in Cardiff, Croydon, Hornsey, Newport, Ipswich, Bournemouth, Hanley, Hastings, or Great Yarmouth; whereas the annual death-rate therefrom ranged upwards in the other large towns to 6·5 in Grimsby, 6·6 in Warrington, and 8·2 in Rotherham. The deaths attributed to diarrhœa in the 76 towns, which had ranged in the eight preceding weeks from 1134 to 347, rose again last week under the influence of higher temperature to 430; the highest annual death-rates from this cause during last week were 3·7 in Aston Manor 3·8 in Hull, 4·0 in Middlesbrough, 4·4 in Preston, 4·6 in Stockport, and 6·5 in Grimsby. The deaths referred to "fever," which had been 35, 23, and 16 in the three preceding weeks, rose last week to 40, and exceeded the number returned in any previous week of this year; they included 11 in London, three in Liverpool, three in Leeds, and two each in Birmingham, Sheffield, and Hull. The 55 fatal cases of measles showed a further increase upon recent weekly numbers, and caused annual rates equal to 1·5 in Stockport and Warrington, 1·8 in Rochdale, and 2·5 in Rotherham. The 32 deaths from diphtheria exceeded the number in the previous week by four, and included 11 in London and two in Gateshead. The 31 fatal cases of whooping-cough showed a further decline, and were fewer than in any previous week of this year;

they caused, however, annual rates in the week equal to 1·5 in West Bromwich, 1·6 in Rotherham, and 2·9 in Stockton-on-Tees. Of the 25 deaths from scarlet fever, a decline of 18 from the number in the previous week, seven occurred in London and its suburban districts, three in Liverpool, four in Manchester and Salford, and two in Birmingham. The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had steadily increased in the six preceding weeks from 2855 to 3742, had further increased to 3755 on Saturday, Oct. 17th; the number of new cases of this disease admitted to these hospitals during the week under notice were 502, against 576 and 550 in the two preceding weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 159 and 156 in the two preceding weeks, rose again to 159 in the week under notice, but were 47 below the corrected average number in the corresponding week of the five years 1903–07. The causes of 31, or 0·7 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death during last week were again duly certified in Manchester, Leeds, Sheffield, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Hull, and in 53 other smaller towns; the 31 uncertified causes of death included six in Birmingham, four in Liverpool, four in Gateshead, three both in St. Helens and Nottingham, and two in Sunderland.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 13·4 and 13·6 per 1000 in the two preceding weeks, declined again to 12·4 in the week ending Oct. 17th. During the first three weeks of the current quarter the annual death-rate in these eight towns averaged 13·1 per 1000, and was 0·2 below the mean rate during the same period in the 76 English towns. Among the eight Scotch towns the death-rate during the week under notice ranged from 7·4 and 8·0 in Perth and Greenock, to 13·8 in Glasgow and 14·4 in Paisley. The 436 deaths in the eight towns showed a decline of 45 from the number in the previous week, and included 58 which were referred to the principal epidemic diseases, against numbers declining from 107 to 55 in the eight preceding weeks; of these 58 deaths, 33 resulted from diarrhœa, 17 from whooping-cough, three from diphtheria, two from measles, two from scarlet fever, and one from "fever," but not one from small-pox. These 58 deaths were equal to an annual rate of 1·6 per 1000, which was 0·4 below the mean rate from the same diseases in the 76 large English towns. The deaths attributed to diarrhœa in the eight Scotch towns, which had declined in the six preceding weeks from 64 to 28, rose again to 33 in the week under notice; 18 occurred in Glasgow, seven in Dundee, four in Edinburgh, and two in Greenock. The 17 fatal cases of whooping-cough showed an increase of eight upon the number in the previous week, and included 11 in Glasgow, three in Dundee, and two in Greenock. The three deaths from diphtheria were fewer by eight than those in the previous week, and were all returned in Glasgow. The deaths referred to "fever," which had been five in each of the two preceding weeks, declined to one last week, which occurred in Glasgow, and was certified as cerebro-spinal fever. The fatal cases both of measles and scarlet fever were again below the average. The deaths referred to diseases of the respiratory organs in the eight towns, which had been 61 and 62 in the two previous weeks, declined last week to 58, and were 15 below the number returned in these towns in the corresponding week of last year. The causes of 15, or 3·4 per cent., of the deaths registered during the week in the eight towns were not stated or not certified; in the 76 English towns during the same week the proportion of uncertified causes of death did not exceed 0·7 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been equal to 20·8, 18·0, and 16·4 per 1000 in the three preceding weeks, rose again to 17·4 in the week ending Oct. 17th. During the first three weeks of the current quarter the death-rate in the city averaged 17·3 per 1000; the mean rate during the same period did not exceed 12·1 in London and 12·4 in Edinburgh. The 132 deaths of Dublin residents during the week under notice showed an increase of eight upon the numbers in the previous week, and included 13 which were referred to the principal zymotic diseases, against 17 and 19 in the two preceding weeks. These 13 deaths were equal to an annual rate of 1·7 per 1000; the rate during the same week from these diseases did not exceed 1·2 in London and 0·7 in Edinburgh. Of the 17 deaths from these epidemic diseases in Dublin last week, five resulted from diarrhœa, three from "fever," two from measles, and one each from scarlet fever, diphtheria, and whooping-cough, but not one from small-pox. The deaths attributed to diarrhœa have steadily declined in the past nine weeks from 39 to five. The three deaths referred to "fever" were one below the number returned in each of the two preceding weeks; and the two fatal cases of measles also showed a decline. The 132 deaths from all causes during the week included 26 of infants under one year of age and 39 of persons aged upwards of 60 years; the deaths of elderly persons exceeded the number in the previous week by 14. One inquest case and no death from violence was registered; and 61, or 46·2 per cent., of the deaths occurred in public institutions. The causes of four, or 3·0 per cent., of the deaths registered during the week in Dublin were not certified; in London the causes of all but one of the 1092 deaths were duly certified, while in Edinburgh the proportion of uncertified causes of death was 5·7 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointment is notified:—Surgeon: H. M. Braithwaite to the *Pembroke*, additional, to be lent to the *Attentive*, temporary.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel Charles G. D. Mosse retires on retired pay (dated Oct. 17th, 1908).

Major Harold S. Peeke is placed on temporary half-pay on account of ill-health (dated Oct. 18th, 1908).

ROYAL ARMY MEDICAL CORPS (MILITIA).

An official notice in the *London Gazette*, dated Oct. 20th, 1908, states that His Majesty the King has been graciously pleased to approve of the disbandment of the Royal Army Medical Corps (Militia).

MILITIA.

Infantry: 8th Battalion, The King's Royal Rifle Corps: Surgeon-Lieutenant-Colonel Edward A. Rawson retires, with permission to retain his rank and to wear the prescribed uniform (dated Sept. 27th, 1908).

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant-Colonel Edward A. Rawson having reached the prescribed limit of age ceases to belong to the Army Medical Reserve of Officers (dated Sept. 27th, 1908).

TERRITORIAL FORCE.

Yeomanry.

Berkshire (Hungerford): Surgeon-Lieutenant Maurice Were Coleman, from the Berks Imperial Yeomanry, to be Surgeon-Lieutenant, with precedence as in the Imperial Yeomanry (dated April 1st, 1908). Hampshire (Carabiniers): Surgeon-Captain Henry Augustus Ahrens, from the Hampshire (Carabiniers) Imperial Yeomanry, to be Surgeon-Captain, with precedence as in the Imperial Yeomanry (dated April 1st, 1908). West Kent (Queen's Own): The undermentioned officer from the West Kent (Queen's Own) Imperial Yeomanry is appointed to the regiment, with rank and precedence as in the Imperial Yeomanry (dated April 1st, 1908): Surgeon-Captain Gardiner William Trouton. Northumberland: The undermentioned officers from the Northumberland (Hussars) Imperial Yeomanry are appointed to the regiment, with rank and precedence as in the Imperial Yeomanry (dated April 1st, 1908): Surgeon-Major Arthur Brumell, Surgeon-Lieutenant Hamilton Drummond. Yorkshire Dragoons (Queen's Own): Surgeon-Major Percy Bernard

Mackay, from the Yorkshire Dragoons (Queen's Own) Imperial Yeomanry, to be Surgeon-Major, with precedence as in the Imperial Yeomanry (dated April 1st, 1908). Yorkshire Hussars (Alexandra, Princess of Wales's Own): Surgeon-Captain Walter Henry Cheetham, from the Yorkshire Hussars (Alexandra, Princess of Wales's Own) Imperial Yeomanry, to be Surgeon-Captain, with precedence as in the Imperial Yeomanry (dated April 1st, 1908).

Royal Garrison Artillery.

Devonshire: Surgeon-Captain James P. S. Ward to be Surgeon-Major (dated April 6th, 1908).

Infantry.

7th Battalion, Northumberland Fusiliers: The undermentioned officers, from the 1st Volunteer Battalion, The Northumberland Fusiliers, are appointed to the battalion, with rank and precedence as in the Volunteer Force (dated April 1st, 1908): Surgeon-Major William Bertie Mackay and Surgeon-Lieutenant Charles George Maclagan. 5th and 6th Battalions, Royal Warwickshire Regiment: Surgeon-Major Richard Arthur Newton, from the 1st Volunteer Battalion, The Royal Warwickshire Regiment, to be Surgeon-Major, with precedence as in the Volunteer Force (dated April 1st, 1908): Surgeon-Captain George Henry Ernest Bekenn, from the 1st Volunteer Battalion, The Royal Warwickshire Regiment, to be Surgeon-Captain, with precedence as in the Volunteer Force (dated April 1st, 1908). 7th Battalion, Worcestershire Regiment: The undermentioned officers from the 1st Volunteer Battalion, The Worcestershire Regiment, are appointed to the battalion, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Major Joseph Robinson and Surgeon-Captain Bertram Addenbrooke. 8th Battalion, Worcestershire Regiment: Surgeon-Lieutenant Hubert Rodney Ross Fowler, from the 2nd Volunteer Battalion, The Worcestershire Regiment, to be Surgeon-Lieutenant, with precedence as in the Volunteer Force (dated April 1st, 1908). 5th Battalion (Cinque Ports), Royal Sussex Regiment: The undermentioned officers, from the 1st Cinque Ports Volunteer Rifle Corps, are appointed to the battalion, with rank and precedence as in the Volunteer Force (dated April 1st, 1908): Surgeon-Lieutenant Alfred Alexander and Surgeon-Lieutenant Peter Millar Waugh. 4th Battalion, Oxfordshire Light Infantry: The undermentioned officers, from the 2nd Volunteer Battalion, The Oxfordshire Light Infantry, are appointed to the battalion, with rank and precedence as in the Volunteer Force (dated April 1st, 1908): Surgeon-Major Julius Ottaway Sankey and Surgeon-Lieutenant Hubert de Burghe Dwyer. The Buckinghamshire Battalion, The Oxfordshire Light Infantry: Surgeon-Captain John Charles Baker, from the 1st Bucks Volunteer Rifle Corps, to be Surgeon-Captain, with precedence as in the Volunteer Force (dated April 1st, 1908). 26th Battalion, City of London Regiment (Honourable Artillery Company): The undermentioned officer from the Honourable Artillery Company of London is appointed to the battalion, with rank and precedence as in the Honourable Artillery Company of London (dated April 1st, 1908): Surgeon-Captain Edward Herbert Myddelton-Gavey.

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st Ayrshire and Galloway: Surgeon-Lieutenant-Colonel Robert Allan is granted the honorary rank of Surgeon-Colonel (dated March 30th, 1908). Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel Robert Allan resigns his commission, with permission to retain his rank and to wear the prescribed uniform (dated March 31st, 1908).

Royal Engineers (Volunteers): 1st Lanarkshire: Surgeon-Captain John H. Teacher resigns his commission (dated March 31st, 1908).

Rifle: 6th Volunteer Battalion, The Royal Scots (Lothian Regiment): Surgeon-Lieutenant Harold S. Ballantyne resigns his commission (dated March 31st, 1908). 4th Volunteer Battalion, The Queen's (Royal West Surrey Regiment): The undermentioned officer resigns his commission (dated March 31st, 1908): Surgeon-Lieutenant Charles S. Palmer. 2nd (Berwickshire) Volunteer Battalion, The King's Own Scottish Borderers: Surgeon-Major Samuel Macvie resigns his commission, with permission to retain his rank and to wear the prescribed uniform (dated March 31st, 1908). The undermentioned officers resign their commissions (dated March 31st, 1908): Surgeon-Lieutenant Alexander J. Campbell and Surgeon-Lieutenant John Paxton. 5th (Deeside Highland) Volunteer Battalion, The Gordon Highlanders: The undermentioned Honorary Assistant Surgeons are retired, under the conditions of paragraph 103, Volunteer Regulations (dated March 31st, 1908): James McHardy and Alexander D. Keith.

Correspondence.

"Audi alteram partem."

SYPHILIS IN UGANDA.

To the Editor of THE LANCET.

SIR,—My attention has been drawn to an article in your issue of Oct. 3rd on "Syphilis in Uganda" and to certain statements therein contained as to the bearing of Christian teaching upon the tribal laws and customs of the Baganda and the disastrous consequences which, it is alleged, have resulted therefrom. May I be permitted to say that I disagree altogether with the assumption from which the conclusion is drawn?

The state of the case in my opinion is simply this. For ages the social restraints in the national life of the Baganda have been due entirely to the existence of a very complete system of feudal ties. The land was held on a service tenure terminable at the will of the king or chief. There was no fixity of tenure. Without such fixity of tenure it had come to be realised by those in authority that there could be no proper development of the country. Consequently the tendency of all legislation in Uganda in recent years has been towards the creation of a class of landed proprietors with the freehold of their lands. The result has been the abolition of the service tenure, the imposition of rent, and the complete break up of that feudal system which with all its restraints, wholesome and unwholesome, has yet, I believe, done good service in the making of Uganda. With this sweeping away of the feudal system has come in not liberty merely but licence, and the result we have stated for us in Colonel Lambkin's paper. Christianity, in my opinion, has had nothing whatever to do with these lamentable consequences. It is a fundamental principle of our work to interfere as little as possible with tribal laws and customs. The breakdown of the feudal system has been due not to Christian teaching—for Christian teaching had no controversy with it—but to Government legislation. In saying this I do not wish in the very least to reflect upon the policy of the administration, which I am sure has been actuated by the highest and best motives. But it is well, I think, that we should be clear in our minds in a case like this as to the causes to which such results as these set forth by Colonel Lambkin are traceable.

With regard to Christian teaching and its bearing on this great question may I quote the words of no less an authority than Sir Harry Johnston? In his great work, "The Uganda Protectorate," p. 642, he thus writes on the two points alluded to in your article—viz., the presumed moribund condition of the Baganda as a race and the introduction of monogamy: "If the Baganda are to be saved from dying out as a race—and I cannot but believe and hope they will—it will be entirely through the introduction of Christianity and the teaching of the missionaries, both Roman and Anglican. The introduction of monogamy as a universally recognised principle now amongst all people who desire to conform to mission teaching may be the salvation of Uganda, strange to say. The people through this teaching are now becoming ashamed of marrying girls who have led a bad life before marriage. The appreciation of female chastity is distinctly rising, while at the same time young men find debauchery no longer fashionable and endeavour to marry early and become the fathers of families. If ever a race needed a puritan revival to save it from extinction it is the Baganda, and if ever Christian missions did positive and unqualified good among a negro race this good has been accomplished in Uganda, where their teaching has turned the current of the more intelligent people's thoughts towards the physical advantages of chastity."

I think that after such an expression of opinion from

such an authority as Sir Harry Johnston I need add no more.

I am, Sir, your most obedient and humble servant,

ALFRED R. TUCKER,
Bishop of Uganda.

Bookham, Surrey, Oct. 13th, 1908.

To the Editor of THE LANCET.

SIR,—No one can deny the gravity of the problem which you discuss in your leading article in THE LANCET of Oct. 3rd under the above title. This matter is engaging the attention not only of the general body of missionaries in Uganda but also of those two able medical missionaries Drs. A. R. and J. H. Cook, who have for many years past sought by every means in their power to relieve the sufferings of the Baganda people and who have also found time to carry on scientific investigation. To them we have sent your article, and we have little doubt that they will desire to offer some comments upon the statements made therein. At the same time, as some weeks must elapse before we can hope to receive a reply from them, we have placed the article in question before the Bishop of Uganda, who possesses an almost unrivalled knowledge of the conditions of life in the Uganda Protectorate.

We will not venture ourselves to offer any opinion as to the causes of the serious increase of syphilis in Uganda of recent years, as we have not the advantage of first-hand knowledge of that region. We have, however, sufficient knowledge of the ravages of syphilis in other uncivilised lands to know that the causes of the rapid spread of the disease or its virulence under certain conditions are notoriously difficult to estimate.

We are, Sir, yours faithfully,

R. ELLIOTT, L.R.C.S. Irel.,
Secretary C.M.S. Medical Committee.
CHARLES F. HARFORD, M.D. Cantab.,
Physician, C.M.S.

Church Missionary Society, Salisbury-square, E.C.,
Oct. 13th, 1908.

DIVISION OF THE AUDITORY NERVE FOR PAINFUL TINNITUS.

To the Editor of THE LANCET.

SIR,—The account of the case in which I divided the auditory nerve was written at the end of last May and published in THE LANCET of Oct. 10th. Dr. Purves Stewart examined the patient on Oct. 18th last and he has kindly furnished me with the following supplementary account of her present condition :—

She is poorly nourished, inclined to refuse food, and has mild delusions of suspicion. There is complete deafness of the right ear, as before, with slight nystagmoid jerks of the eyes on lateral deviation to either side. The right side of the pharynx is slightly weak, but the face, soft palate, and tongue move normally. She stated to me that she still has slight buzzing tinnitus in the right ear, "like steam," not constant; she also added that before the operation this noise was constant and much more intense. She still, however, complains of intense discomfort in the right side of the head—a painful dragging sensation, which has not been influenced by the operation. She has a subjective salt taste all over the tongue and mouth, bilaterally. The sensory, motor, and reflex functions of the trunk and limbs are normal. I find no evidence of organic disease apart from the right-sided deafness and the paresis of the right pharynx. The loss of taste appears to have been due to implication of the Fallopian part of the facial nerve before you operated. The subjective gustatory sensation is doubtless functional in origin.

It is obvious that the case is one of much difficulty and that it is complicated, as many organic conditions are, by superadded functional phenomena. There is no doubt that the tinnitus which before the division of the auditory nerve was spoken of as culminating in pain is now practically gone; but there persists a distressing dragging sensation on the same side of the head which cannot easily be described and the cause and nature of which are entirely obscure.

I am, Sir, yours faithfully,

CHARLES A. BALLANCE.

Oct. 19th, 1908.

To the Editor of THE LANCET.

SIR,—My friend Mr. Charles Ballance, in discussing his interesting case of division of the auditory nerve for painful tinnitus in THE LANCET of Oct. 10th, pp. 1070–73, refers to the well-known paper of Dr. J. Ramsay Hunt of New York on the Herpetic Inflammations of the Geniculate Ganglion (*Journal of Nervous and Mental Disease*, February, 1907). I write to mention that not only has Dr. Hunt recently written in the August, 1908, number of the *American Journal of the Medical Sciences* a further paper on the subject, but that in the August, 1908, number of the *Journal of Nervous and Mental Disease* Dr. T. J. Orbison writes on Herpes of the Membrana Tympani and attributes it to zosteroid affection of the petrosal ganglion. At present there is no post-mortem evidence as to the correctness of his view.

I am, Sir, yours faithfully,

LEONARD J. KIDD.

Green-street, W., Oct. 13th, 1908.

THE CAUSE AND PREVENTION OF DENTAL CARIES.

To the Editor of THE LANCET.

SIR,—The forcible letter by Dr. Harry Campbell in THE LANCET of Oct. 17th, p. 1176, on the prevention of dental disease is a welcome sign of the awakening interest on this important subject. While those who have made it a special study might suggest that prevention is not quite so simple, that hereditary influences have to be considered, that pre-natal conditions should be taken into account, and that feeding during the first few months of life is of vital importance, few will doubt that defective diet is the most important factor, and that with the medical profession lies the onerous task of teaching the lay mind that the organs of mastication must have suitable food and sufficient exercise if dental disease is to be prevented.

Not by way of criticism, still less through controversy, would I approach this subject, for your correspondent's closing lines disarm both. I would, however, venture very briefly to supplement his earnest appeal to the medical profession by endeavouring to explain how reform may be effected, and why it has not been done long ago. It is an indisputable fact that the medical practitioner's knowledge of disease enables him to guide the layman in matters of health, however simple the principles upon which such guidance is based. How can you expect the practitioner to prevent a disease when a knowledge of it is entirely absent? We are apt to imagine that dental disease and its disastrous effects are of quite recent origin; but there is very little evidence to prove that the national teeth are worse than they were 40 years ago; yet it would be impossible to find a disease—affecting 85 per cent. of the young adults in this country—which has been treated with such utter indifference by the medical profession.

I have dealt fully with this subject in the pages of THE LANCET[1] and there pointed out that on examining the final papers in London for ten years not a single question was found on dental caries. The remedy is quite simple and rests with the examiners—with the teachers, not with the taught; for so long as it is possible for the medical student to pass through his hospital training without being obliged to spend one week in the dental department, or answer a single question on the most prevalent of all diseases, so long will the prevention of dental caries be retarded and this national disgrace remain. I am, Sir, yours faithfully,

R. DENISON PEDLEY,
Dental Surgeon to the Evelina Hospital, Southwark.

Railway Approach, London Bridge, S.E., Oct. 19th, 1908.

To the Editor of THE LANCET.

SIR,—I have no desire to draw Dr. Harry Campbell into any controversy but I should like to point out how useless are such theories unless supported by facts. Can he produce any children who have been fed in the way described and who have perfect teeth? Against the diet theory there are many arguments. Teeth often decay as soon as cut and before the child has had much opportunity of doing them either good or harm. In out-of-the-way country places children are fed in just the same way as were their parents and grandparents and yet their teeth decay, while the parents often have sound ones. Every theory of dieting has been tried on the children of this generation without effect. I fail to see the use of laying down laws unless facts can be produced to refute these and many other arguments.

Of the three theories of the cause of dental caries—(1) diet,

[1] Dental Disease and the Medical Profession, THE LANCET, Oct. 29th 1904, p. 1207.

(2) infection, and (3) degeneration—diet seems to have the least to do with the decay of the teeth. Has anyone ever seen satisfactory results from wholemeal bread, "jaw drill," vegetable diet, or the score of other diet treatments? Dentists seldom look beyond their patients' teeth, so their theory that decay is due to neglect of the teeth is not worth much. Moreover, decay still goes on when the dentist has complete control.

I think it not unlikely that the improvement in dentistry has something to do with the increase of dental decay. When loss of teeth meant loss of health and life natural selection kept the teeth strong. Even a generation or two ago a woman with defective teeth had less chance of marriage, and so sexual selection also tended to preserve a disease-resisting type. But now the dentist has altered all this, and a complete set of false teeth is no detriment to a young woman; American women are even said to pride themselves on their gold stopping. I think you find the worst cases of infant dental caries in the offspring of mothers with decaying teeth, suggesting that decay may be due to direct infection. Infection acting upon degenerate teeth seems to me the only feasible theory, but the question can only be answered by the careful collection of facts.

I am, Sir, yours faithfully,

Silverton, Devon, Oct. 19th, 1908. O. CLAYTON JONES.

CARDIAC MOTION AS REVEALED BY THE VIVISECTION OF DISEASE.

To the Editor of THE LANCET.

SIR,—In the report of the proceedings of the Æsculapian Society which appeared in THE LANCET of Oct. 17th, the energetic secretary of the society whose succinct and accurate reports you regularly publish, slightly misunderstood two points in this instance, which, with your permission, I shall correct without delay, as the matters in question may be discussed again. In the first place, the sarcomatous invasion of the right auricle and ventricle very greatly restricted the contractility of those chambers, but as there was some uninvolved muscular tissue in both there may have been a very limited movement of both. In the next place the patient I showed was the case of thoracostomy for cardiac pain, an account of which you published in THE LANCET of July 4th, 1908, and while it was the first case operated upon for this cause it was not by any means the first case of thoracostomy for heart disease.

I am, Sir, yours faithfully,

ALEXANDER MORISON, M.D. Edin.

Upper Berkeley-street, Portman-square, W., Oct. 19th, 1908.

A POINT UNDER THE WORKMEN'S COMPENSATION ACT, 1906.

To the Editor of THE LANCET.

SIR,—The Workmen's Compensation Act (1906) has laid a very serious trap into which our patients may unwittingly fall. A patient of mine, a chronic invalid, quite helpless, sent for a male attendant from an institution to act as stop-gap during the illness of a permanent attendant. When the substitute had been in the house three days he ruptured some fibres of his diaphragm and has been invalided for over six months. The institution has no insurance for its men and the patient's insurance does not cover such a claim. Heavy claims are being made against my patient and he will probably have to disprove his liability in court, as the Act is so indefinite and so badly drafted as regards this point. It behoves medical men in the interests of their patients to ascertain what nursing "institutions" are insured and to recommend those only, and it would be to every one's interest that such concerns should announce in their advertisements the fact that they do insure their nurses.

I am, Sir, yours faithfully,

Oct. 16th, 1908. CAUTIOUS.

THE WATER-SUPPLY OF ST. JUST (CORNWALL).—The St. Just Urban District Council, by its neglect to provide the town with an adequate water-supply, has exhausted the patience of the Cornwall County Council, which has complained to the Local Government Board and asked for an inquiry.

THE SANITARY DEFENCE OF THE HEDJAZ RAILWAY.

(BY THE BRITISH DELEGATE ON THE CONSTANTINOPLE BOARD OF HEALTH.)

(Illustrated with Reproductions of Photographs taken by the Author.)

III.[1]—MEDAINI-SALIH.

ABOUT two hours after leaving Tebuk our train passed through another rocky valley, known as the Zahr-el-Akhdar, and shortly after reached the "station" of Akhdar. There is no village here, nothing but the fortress-like station building. About two kilometres further on we stopped again, at the junction of two valleys; there is here a large reservoir with pump, and in the valley to the right (west) is the ancient *kala'at* of Akhdar. Here, also, there is no village, though close to the fort were a few black tents of some wandering Bedouins. Akhdar had been mentioned as a possible site for the future lazaret. There is a fairly large flat surface here, surrounded on all sides by hills. But the site would be in many ways inferior to that at Tebuk. We did not measure it, but it is certain that it would barely suffice (if, indeed, it did suffice) to contain all the cordons and buildings that it is proposed to put up in the first instance, and would not allow of expansion in the future, should such prove necessary. Moreover, being shut in by hills, there would be a lack of free circulation of air and the heat would be great.

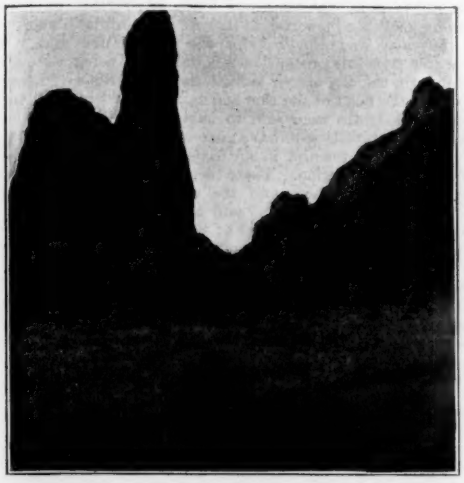
Here, as in many other parts of the line, there is quite a considerable amount of desert herbage to break the monotony of unending sand and stones. In the Akhdar neighbourhood the colocynth plant is found in large quantities, creeping like a low-growing vine along the ground, and shedding its mottled gourds in all directions. Here also are found any number of annuloid fossils, to which the Bedouins give the unsavoury name of "Job's worms"; believing, it would seem, that it was in this desert that Job was finally cleansed and purged of his bodily ills. The water at Akhdar is said to be abundant and it proved to be of better quality than any other examined by the Commission. The specimen analysed was taken from the well in the *kala'at* and gave the following results. The water was colourless and clear and without smell; it contained 2·6 parts of chlorine as chlorides; 0·148 total nitrogen, of which 0·139 occurred as nitrates, 0·003 as free ammonia, and 0·006 as organic nitrogen; the oxygen consumed in the permanganate process in three hours at 27°C. was 0·0955; the total hardness was 14·21, and the permanent hardness after boiling 5·29. The total solids were 37. As before, all these figures represent parts per 100,000.

After a brief stay at Akhdar the Commission went on to Medaini-Salih, a night's journey further down the line. The approach to Medaini-Salih is through a remarkable bit of scenery. The line winds down through a gorge in the sandstone mountains, known to the Arabs as the Mubrakat-el-Naka, or the valley of the "Camel-calf." The mountains in this portion of Arabia—not merely in the gorge—have been split up into the most fantastic forms: pinnacles, towers, and shapelessly monstrous objects of every kind rise abruptly from the sand, and it is really small wonder that the pilgrims have peopled this weird passage with evil spirits, whom they try to frighten away by loud cries as they pass through the gorge on their way to Medina. At the end of the gorge, but still surrounded by groups of the weird rocks, is the place known as Medaini-Salih—the "Cities of the Prophet Salih." The station is at the 955th kilometre from Damascus, and 347 north of Medina. It lies 820 metres above sea-level. There is no village of any kind here, and the only traces of the ancient "cities" are those wonderful Nabatæan monuments and inscriptions which must for ever be associated with the names of Doughty and Rénan. The old *kala'at* in which Mr. Doughty spent so many weary weeks still stands, with its reservoir by the side; but close by the railway has built its high water-tower and other of the station buildings almost surround the fort. The number and extent of these buildings show that this place is an important administrative centre on the line. They occupy the middle of a large, sandy plain dotted with tussocks of desert herbage, here more abundant

[1] Nos. I. and II. were published in THE LANCET of Sept. 26th, p. 971, and Oct. 10th, 1908, p. 1104, respectively.

than further north, and with several acacia and terebinth trees. The groups of fantastic rocks with the Nabatæan tombs lie mostly to the south-east. To the distant west rises the gigantic table-rock of the Howweira; the sides are precipitous, apparently of red sandstone, and the top would appear to be covered with black lava, much of which has flowed over and formed blackish heaps at the foot. Still farther to the west is the craggy range of the Harra. The spectacle at Medaini-Salih is consequently a remarkable one. The heat here was considerable, the thermometer rising in the day to over 106° F.; but the air was extremely dry and a strong wind blew the whole time, rendering this high temperature more or less supportable.

FIG. 8.



In the Mubrakat-el Naka gorge.

The improvised quarantine camp for pilgrims returning from the Hedjaz was put up at Medaini-Salih in each of the last two pilgrim seasons and traces of it can still be seen. It occupied a site to the east of the line and south of the *kala'at*. A ridge of sand (seen in the accompanying photograph, Fig. 9) along which the water-piping was laid still remains, running north and south, and dividing the area into two unequal parts. A series of ten primitive cordons was, it is said, established on either side of this ridge; those to the west were small and limited by the ridge and the railway; those to the east had unlimited space in an easterly direction. The only barrier round them was a cord stretched between posts, so that practically no true isolation of the different groups of pilgrims was possible. The "indigent," non-paying pilgrims were camped at the south end of the area, close to one of two so-called Nabatæan wells to be mentioned later. The camel-drivers (*akkiams*) were similarly grouped round the other of these wells. The latrine arrangements in all these cordons were of the most primitive character, consisting of mere holes in the ground. The "hospital" was established in tents on the other (western) side of the line. The area just described is the best that can be found in this neighbourhood. It has, however, several disadvantages. After heavy rains it is in large part inundated, as, indeed, is the greater portion of the Medaini-Salih valley. This happened on more than one occasion last winter; the water stood, it is said, to the depth of half a metre and did not soak away for a couple of days. The caked, muddy surface of the desert still showed in many places where these inundations had occurred. The railway authorities have found this a serious difficulty for their buildings, and in order to cope with it are constructing all their new buildings at Medaini-Salih on artificially raised foundations, nearly a metre (in some cases more) above the general level of the plain. This involves, of course, a very considerable addition to the cost of construction, and in the event of houses having to be put up to quarantine 10,000 pilgrims the added outlay would be enormous. The site in question is also bounded on the south by the rocks above mentioned; these shut off the air and radiate a reflected heat from the sun which makes of this site one of the hottest we inspected. To the west of the line there is no suitable site, as the plain here, besides being very "accidentée," is also subject to inundation.

There is apparently an abundant supply of water at Medaini-Salih. The railway engineers believe that it occurs as a generalised underground layer of water through the whole valley, as wherever a well is sunk water is found; no movement has been observed in it, but as the land tends to fall slightly from north-west to south-east it is thought that the water, if it has any movement at all, may flow slowly in this direction. The soil is a soft sandstone (Nubian?) under a surface of alluvium; its permeability varies in different places and consequently the yield of different wells varies. The large station well close to the *kala'at* has the usual stone tower, with two large reservoirs, pump, and windmill close by it. It yields up to 125 tons of water in the 24 hours. A second well was being sunk at the time of our visit, just to the right (west) of the line, but it was not completed. Here the surface of the water was at 8 metres below that of the desert: there was only one metre of water, but it was intended to go to a depth of 3 metres. The reservoir by the *kala'at* contained stagnant water of a not very inviting appearance. Specimens of all three waters were analysed and gave the following results expressed in parts per 100,000. The well water (from the well with water-tower) was clear and had no smell; it contained 21·2 parts of chlorine as chlorides; the nitrogen was not estimated; the oxygen consumed in the permanganate process during three hours at 27° C. was 0·1983; the total hardness was 22·86 and the permanent 19·13. The total solids were not estimated. The other (unfinished) well water gave the following: colour slightly yellow; no smell; chlorines as chlorides, 17·5; total nitrogen, 0·2063, of which 0·0933 occurred as nitrates, 0·004 as free ammonia, and 0·009 as organic nitrogen; the oxygen consumed by the permanganate process during three hours at 27° C. was 0·2063; the total hardness was 25·12 and the permanent 13·31; the total solids were 76·7. Finally, the water from the reservoir (*burket*) by the fort gave the following analysis: the colour was yellowish; there

FIG. 9.

Medaini-Salih: the site of last year's quarantine camp for pilgrims.

was no smell; chlorine as chlorides, 29·7; total nitrogen, 0·342, of which 0·329 occurred as nitrates, 0·001 as free ammonia, and 0·012 as organic nitrogen; the oxygen consumed by the permanganate process during three hours at 27° C. was 0·2524; the total hardness was 27 and the permanent 22·52; the total solids were 154·6. Mention was made above of two so-called Nabatæan wells; they are situated towards the south end of the area occupied last winter by the improvised lazaret and not far from the rocks in which are the monuments. The more southerly one is about four metres in

diameter and some 10 or 12 deep to the surface of water; it has rough masonry walls for the upper six feet, and then seems to be sunk in solid rock. In the other the masonry extends the whole way down; the bottom was of sand, with a little stagnant water in one corner. Not a few of the stones let into the walls bear inscriptions in the Nabatæan character, so that in all probability these wells, though vaguely ascribed to that race, date from a period a good deal more modern. Three similar wells are said to exist at the foot of the distant hills that bound the Medaini-Salih plain

FIG. 10.

A Nabatæan monument at Medaini-Salih.

on the east. Up to the present the staff and workmen on the line have drunk the water from the station wells and it has not seriously affected their health. It has, however, a distinctly brackish taste, which is not surprising in view of the above figures, and we were told that later the railway authorities intend to import better water to Medaini-Salih either from El Oula (24 kilometres nearer Medina) or from Akhdar.

The stone found at Medaini-Salih is a sandstone of a rather friable character. It is not very suitable for permanent buildings and the railway imports a building stone of a better character from El Oula. Several truck-loads of this stone arrived while we were there. A passably good stone is also found as close as five kilometres from the station. But both these stones are said to be incomparably inferior to that found at Tebuk. The friable character of the Medaini-Salih stone is well seen in the neighbourhood of the Nabatæan monuments. Quite recently (last winter apparently) at the south end of the rocky hill known as the Kasr-el-Bint, which contains some of the best of these monuments, a large fragment of rock has fallen and been shattered to pieces at the foot of the hill, blocking up the façades of more than one of the tombs.

It is impossible to leave this brief description of what is perhaps one of the most remarkable spots in Arabia without some notice of these wonderful monuments of a forgotten civilisation, though their interest is archæological rather than in any sense medical. They have been once and for all so admirably described and illustrated by Mr. Doughty in the first volume of his "Arabia Deserta" (the original edition) that there is little left for later travellers to add. But it is impossible to stand before these stately façades (or "frontispieces," as he called them) without being profoundly impressed by their dignity, their number and size, and their "unexpectedness" in these weird desert solitudes. Many of them are 60 or 70 feet in height; yet the inner tomb chambers are curiously small in proportion to these great façades. There are many roughly hewn cells in each chamber where it may be supposed the coffins were placed; in nearly all are heaps of dead men's bones, mixed with fragments of pottery, fallen stones, bits of wood that may perhaps have formed parts of coffins, relics of a coarse cloth in which the bodies were presumably wrapped, and lumps of a resinous substance which may perhaps be some of the frankincense in which the ancient Nabatæans trafficked, or in which their bodies were rudely embalmed. Nothing is more remarkable than that no trace, save these tombs, remains of what, to judge by their number, must have been an important city. At their capital of Petra, on the other hand, there are, in addition to sepulchral monuments, innumerable façades of temples and public buildings of many kinds. But here at Medaini-Salih nothing is left but the tombs. And this is perhaps the more remarkable in that, with few exceptions, the Medaini-Salih façades are much better preserved than those at Petra, showing that the rock here, friable though it be, is more durable than that in the latter city.

The Commission did not go further than Medaini-Salih. The rail head at that time was some way further on but it was impossible to proceed to it. At Medaini-Salih an escort of 50 men was provided for the Commission and it is probable that this precaution was far from being an empty form. On the day of our arrival there a serious attack was made on the head of the line and in the fight which followed some 40 Bedouins were said to have been killed. It would have been interesting to have gone on at least to El Oula, a large village or townlet in an oasis, and the most important centre in this region. There is said to be an abundant supply of water there and the water is reported of good quality; one spring alone is said to yield about 1000 tons a day. But the climate is said to be unhealthy and a form of oriental sore, akin to, or identical with, the Aleppo button, is so prevalent that practically every one suffers from it there. Perhaps it is not quite the same as the Aleppo button, as it only lasts some 30 or 35 days. It leaves pigmented scars; some people have two or more at the same time; they occur rarely on the face, more often on the exposed surface of one of the limbs. It is said to be unknown at Medaini-Salih and certainly does not occur at Tebuk.

FIG. 11

An ancient well, probably Nabatæan, at Medaini-Salih.

As at other places along the line there are practically no meteorological records at Medaini-Salih. I have noted that at 1 P.M. on June 9th the thermometer stood at 39° C. in the shade and that at 4.30 P.M. it had risen to 41° C. (105·8° F.). Meissner Pasha tells me that the extreme limits of temperature here are 45° C. (113° F.) in summer and — 7° C. (19·4° F.) in winter. Situated as Medaini-Salih is in a valley surrounded by rocky hills, the nights here are very hot in summer. Sandstorms of great severity are common; they are said to occur about once a fortnight; while they last they produce almost intolerable conditions. Rain falls mostly in winter; sometimes in heavy downfalls, producing the inundations referred to in an earlier part of this article.

(To be concluded.)

Obituary.

JAMES GREY GLOVER, M.D. EDIN., L.R.C.S. EDIN., L.S.A. LOND., J.P.

James Grey Glover was born in South Shields in 1832. His father, Alderman Terrot Glover, was a man of great ability and public spirit who played an important part in the life of his native town through a long and honourable life. His mother was a lady of exceptional strength and sweetness of character. James was one of the eight sons of these splendid parents and his early years were spent in that best of all schools of manners and character—a large and healthy family presided over by wise and godly parents. His whole course in life was an evidence of the strong influence of heredity and of the power of a robust and yet gentle and unselfish environment during the plastic days of youth.

He was sent to the best school in South Shields and was then apprenticed to Dr. Williamson, a surgeon in South Shields, who had a large practice and was a man of strong commonsense and sagacious judgment. The association of master and pupil was an altogether happy one and the close links of regard and affection formed in these early days never weakened with the flight of years and were only broken by Dr. Williamson's death a few years ago. Dr. Glover always spoke of Dr. Williamson with the highest regard, and to a younger generation the sight of the two men together showed how helpful the old and abandoned practice of medical apprenticeship was when master and pupil were loyal and wise. At the close of his apprenticeship he went to the University of Edinburgh, the great medical school of which was then at the very zenith of its fame. There he came under the powerful influence of such men as Christison, Goodsir, Alison, Syme, Gregory, and Simpson. He was a very keen student and the teaching and example of these men kindled his enthusiasm and stimulated all that was best in him. From the first he took a high place in his classes and at the close of his course carried off Dr. Alison's prize in practice of medicine. He graduated M.D. in 1854 and subsequently went to the Rotunda Hospital, Dublin, to obtain a thorough training in midwifery. Dr. Glover then went as assistant to practitioners in Wotton, in Leicester, and in Hounslow, and after this started in practice in his native South Shields. But his ambition was to go to London, and in 1858 he took a house there and furnished it, but the sudden death of his mother on the very day that he arrived in his new home altered all his plans and he returned to South Shields. However, in 1864 his old ambition asserted itself, and he returned to London and started in practice in Highbury, living first at 33, Compton-terrace, and later at 25, Highbury-place, a house which had once been the home of the Rt. Hon. Joseph Chamberlain.

It is well to recall what Dr. Glover was when he thus began his real life work and to note what special gifts and endowments he possessed. He was just 32 years of age, with a strong constitution, a keen intellect, an ardent nature, well disciplined in self-control, and intensely devoted to his profession which he regarded as a noble mission and for which he had trained himself by years of patient study and practical work. Added to these were a mind well versed in the best English literature, a distinct facility in speech and writing, a saving sense of humour, and above all a broad outlook upon life, a strong faith in the future, and a profound conviction that life was worth living. Fond of his fellow men, he had a keen eye for what was good in them and was inspired with a strong desire to remedy the social ills of the community as well as its physical ailments. And permeating his whole nature was a strong religious belief which widened his sympathies and gave him a courage and persistency which many of his associates envied. Such a man was not likely to confine his energies within any narrow channels or to use for self what was meant for a wider good. Soon after he settled in London he married Miss Muller, who survives him, in whom he found a worthy help-meet and whose gracious influence made his home a peculiarly happy one.

His first great interest was unquestionably in his practice. He was in many ways an example of the highest type of general practitioner; well trained as a student, thoroughly grounded in the science and art of his student days, he was keenly appreciative of the various advances of both the science and the art, and he was from the first an ardent disciple of Mr. Lister. Full of resource himself he was always ready to seek help and guidance in consultations but did not thereby relieve himself of responsibility. He had an admirable sense of proportion, took a wide view of a case, and was a wise adviser. In a rare degree he became the trusted and faithful friend of all his patients who held him in the highest esteem for his sterling uprightness of character, his helpfulness and unselfishness, and his singleness of mind in his regard for the interests of his patients. He rapidly secured a large practice and the hard work which this entailed was always relieved by the intense human interest and the many opportunities of doing good that it gave him. Admirable as a practitioner, Dr. Glover was eminently a publicist, taking a keen practical interest in all social and political movements. With considerable literary facility himself it was natural that he should seek for the expression of his views in the medical press. In 1862 he sent to THE LANCET an article entitled "A Physiological View of the Premier" (Lord Palmerston), which was accepted by the editor and published in the issue of June 14th of that year. It attracted unusual attention, was copied into nearly every paper in England, and was even referred to in some verses in *Punch*. From this date until 1902 he was a regular and most valuable member of our editorial staff. It may not be out of place to reproduce here some words which appeared in our columns on the occasion of his retirement:—"With unfeigned regret we have to announce that Dr. Glover has intimated to us his wish to retire from active work as a member of the editorial staff of THE LANCET. His connexion with our staff commenced in June, 1862, under the editorship of the late Dr. James Wakley, and has continued uninterruptedly to the present time. During this long period of more than 40 years we have invariably found him to be a true, trustworthy, and sagacious colleague and a personal friend of sterling worth. As, happily, he will read these words we must refrain from the full meed of praise that is his due; but he knows, we think, how highly his services have been appreciated by us and he has been so kind as to tell us that the appreciation has not been wholly on one side. ..... In the name of our predecessors in the editorial chair and for ourselves we thank him for the work which he has done and for the time which he has expended in the service of THE LANCET; perhaps we may go further and thank him for all that he has accomplished, or tried to accomplish, on behalf of the profession which he loves so well." Dr. Glover was particularly interested in all questions of professional ethics and in those matters in which the interests of the profession come into contact with the public life of the community. His judgment was sound, his opinions were expressed in clear, bright phraseology, and were inspired by that high ideal and generous instinct which characterised everything he did.

Reference may be made to three subjects to which he gave very special attention. He was one of the first and the most persistent of the advocates for the direct representation of the profession on the General Medical Council. Year after year he pursued in our columns this aim. He approached this question from the democratic standpoint, holding that the government of a profession, as of the nation, must be widely representative. With a varied experience of general practice in the provinces as well as in London, and at the same time intimately associated with medical consultants and teachers, he realised that a Council chosen from the latter did not, and could not, appreciate the peculiar needs and claims of the former. The discussion of this question was carried on by Dr. Glover with great persistence but without bitterness, and the success which he achieved was in no small part due to the broad, generous, and sympathetic spirit which had animated him throughout. When Direct Representation of the profession on the Council was granted it was generally recognised that Dr. Glover was marked out as a most suitable Direct Representative. He was elected by a large majority and was re-elected time after time, and it was not until after 16 years' service, when advised that it was necessary for him to lay aside some part of his work, that he announced his intention not to seek re-election. His election was by no means a reward for his splendid services in persistently advocating in these columns the claim of the profession to Direct Representation; it was far more than that. Dr.

Glover was chosen because it was known that he would truly represent all that is best in the general body of medical practitioners, that he would be entirely single in his aims, that his opinions would be arrived at only after mature and impartial consideration, and that they would be expressed with courtesy and dignity. It was no secret to his friends that the results of Direct Representation have hitherto not been equal to the high hopes which he had for years entertained. But it may be very confidently affirmed that Dr. Glover's association with the General Medical Council was equally honourable to himself, grateful to his colleagues, and beneficial to the profession.

The movement for the establishment of the Metropolitan Hospital Sunday Fund was a second object in which he took the deepest interest, and for many years in our columns and elsewhere he urged the claims of this admirable institution. He was a member of the council of this Fund from its foundation to the close of his life. He took a prominent part in the work of the council and exercised a considerable influence upon its actions, while only so recently as Oct. 7th he attended a meeting of the general purposes committee. He was deeply interested in our hospitals from many points of view, but not the least from their being great voluntary charities, and year by year he did his utmost to urge the claims of Hospital Sunday upon all whom he could influence. At his instigation Sir Frederick Treves gave an address at Union Chapel, Islington, on Hospital Sunday last year, and this year he induced Sir Thomas Barlow to plead for hospitals before the same congregation. He believed that those who had spent much of their lives in the actual work of hospitals should be prepared to take their share in pleading for their support.

The third object in which he took a peculiar interest was the antiseptic system initiated by Lister. From the first he recognised the true scientific character of Lister's work and admired the sobriety and reserve with which he published his results. When too many were arrayed against the novel doctrines and their exponent, Dr. Glover lost no opportunity to advocate their soundness and to try to win for them an impartial acceptance. As an evidence of the worth of what he did we have before us a letter which Lord Lister wrote to Dr. Glover last year in acknowledging a letter from him on the occasion of Lord Lister's eightieth birthday. The letter gave unqualified pleasure to Dr. Glover and we feel that we are breaking no confidence in quoting from it these words: "In the early days of antiseptic work I had much reason for thankfulness to you, and you have always been a kind friend to me."

When the Clinical Society of London was founded in 1867 its aim appealed in a very special way to Dr. Glover, and he was elected to its membership in 1868, and for nearly 40 years he was a most constant attendant at its meetings. He often joined in the discussions, and his remarks were characterised by deep clinical insight, breadth of view, and a desire to bring into clear relief the practical issues at stake. He served on the council of the society and held office as a vice-president.

A man of Dr. Glover's mould could not find his work only in the practice of his profession and in the pursuit of literature. He touched life on every side, and life to him was the supreme interest. He was bound therefore to engage in the public affairs of the locality in which he lived and in the affairs of the nation. He was an earnest politician and exercised considerable influence upon the political convictions of his friends and neighbours. In all these matters his judgment of what was right and wise, and not the ties or interests of a party, determined his action. His conclusions were the outcome of careful study and bore the impress of that broad outlook and cheerful optimism that so eminently characterised his entire mental attitude. For several years Dr. Glover was Justice of the Peace for the county of Middlesex and acted as visiting justice to Holloway Prison, and as one of the licensing justices. He devoted himself with punctuality and the greatest carefulness to all the responsibilities of this important office, for he regarded it far more as a responsibility than as an honour. Dr. Glover came of a staunch Nonconformist stock and he remained loyal to these convictions throughout his long life. He was for many years a member of the congregation worshipping at Union Chapel, Islington, being an ardent admirer of the late Dr. Henry Allon, and of his successor, Dr. Harwood. He was, however, singularly free from all sectarian narrowness or bitterness; he took a special delight in the friendship of earnest men of other religious opinions than his own, and with that wide charity which was such a prominent feature in his character he rejoiced in the common faith and hope which lay beneath the distinctions of creeds and ceremonial.

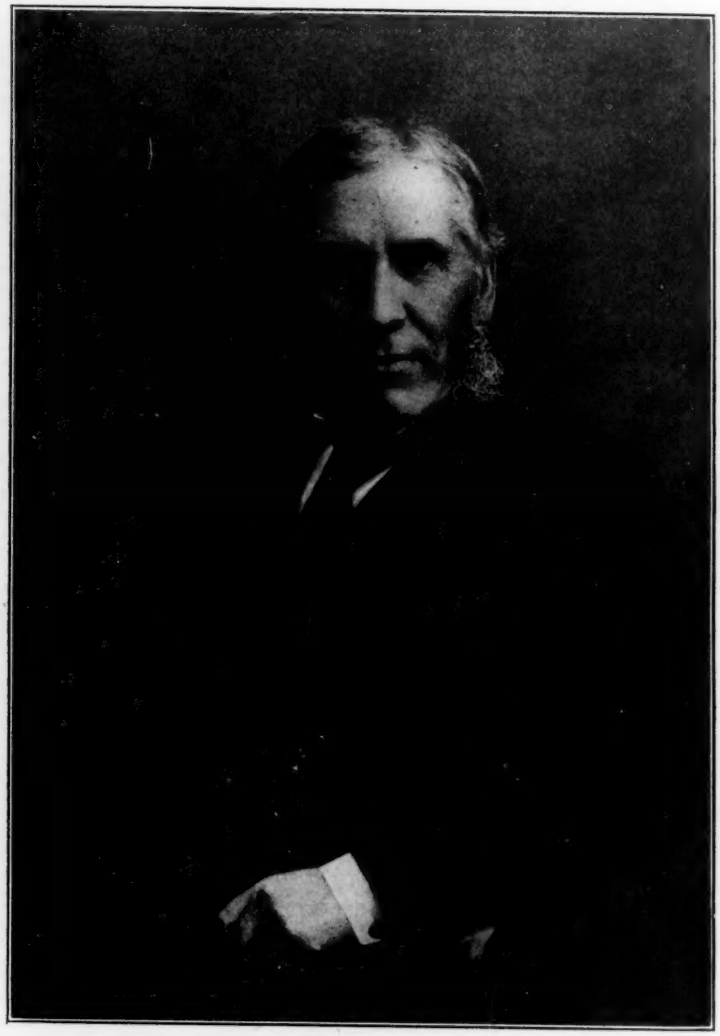
In looking back upon this life, the fulness of which we have only been able to indicate very imperfectly, it is pleasant to remember that it was interrupted by no period of ill health, unclouded by any great family or personal sorrow, and was throughout its long and honourable course gladdened by the respect and affection of all with whom he was associated. He was permitted to live beyond the usual span, to see his children grow up and settled in life, to witness the accomplishment of most of the great purposes in which he had spent himself, and we think that he would himself have chosen that life should not extend far beyond his powers of service. Only this summer he handed over his practice at Highbury to his son and moved away to Hampstead, and it was while resuming for a short time the old practice, while the son was on his honeymoon, that the short fatal illness occurred. On Sunday, Oct. 11th, he was seized with pain in his chest; on Monday the pain recurred with greater severity and death appeared imminent, but he rallied, and on Wednesday he was so much better that hopes were entertained of his recovery, but in the evening he passed away with absolute suddenness, the cause of death being the rupture of an aortic aneurysm into the right pleural cavity. He was laid to rest in Hampstead Cemetery on Saturday last and on Sunday morning a memorial service was held at Union Chapel, Islington, with which he had been closely identified for so many years. There was a large congregation of his friends and patients and Dr. Harwood delivered an appreciative address which evidently struck a responsive chord in many of his audience.

Of such a life much might fitly be said; we must content ourselves with pointing out the striking example which it affords of the opportunity that a good man has for living a full and widely influential life while engaged in the practice of medicine. The association of literature with medicine has very many illustrations, but many another field of human interest afforded scope for Dr. Glover's energies. He was a very busy, active man, with a wonderful gift of being always occupied, and yet never in a hurry, intensely interested in what was for the moment engaging his attention, but never too absorbed to be sympathetic with any claim that presented itself. Strong in his own convictions, his love of truth and of justice enabled him to take a sympathetic interest in other views than his own; nor were his optimism and his intense confidence in the evolution of mankind a less striking and charming feature in his character. Able to appreciate and to rejoice in the deeds of the great men who have passed away, he ever had his eyes turned towards the dawn. Of him as of another long ago it may be said:—

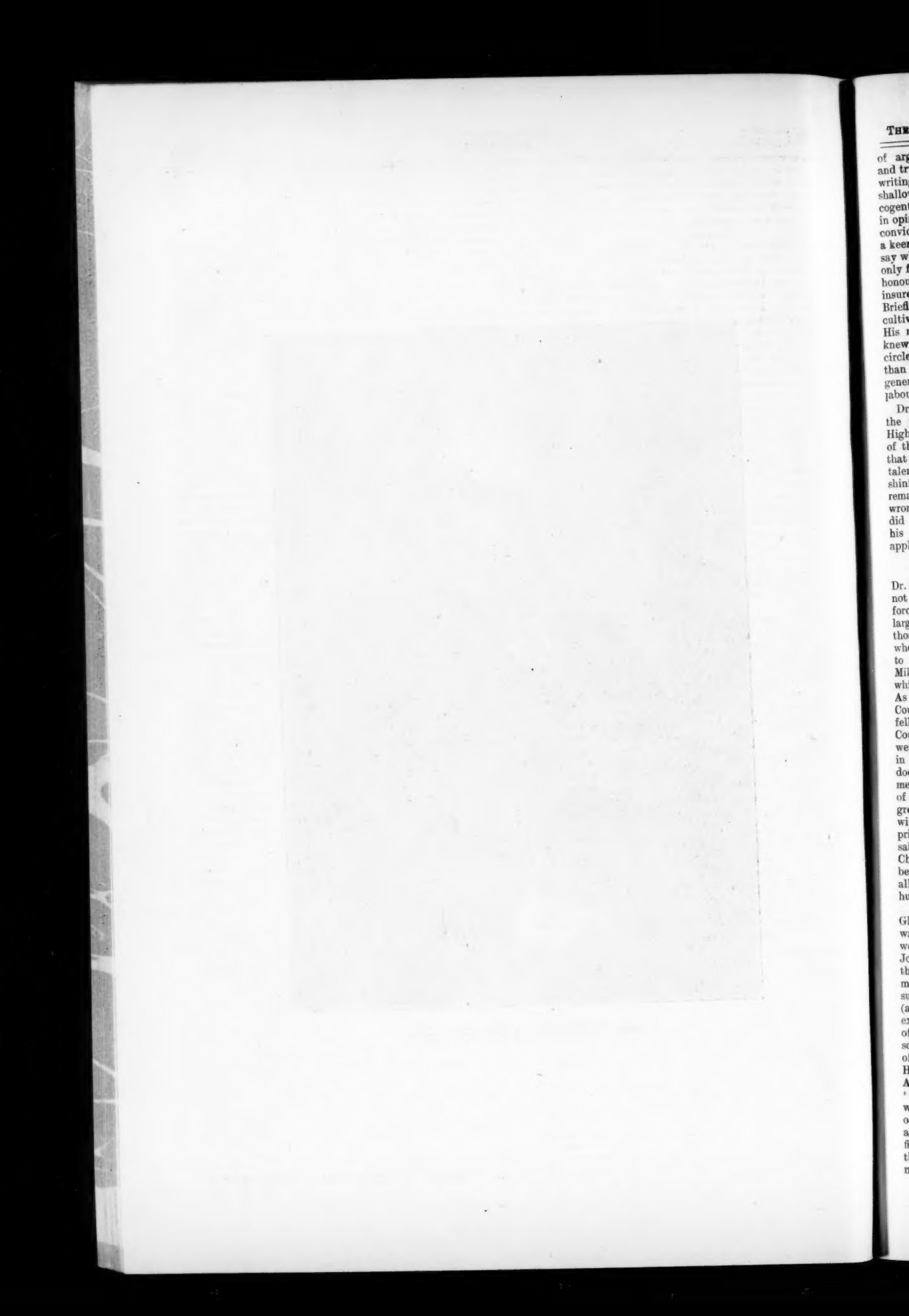
> Ingenium cui nulla malum sententia suadet
> Ut faceret facinus levis aut malu'; doctu', fidelis,
> Suavis homo, facundu', suo contentu', beatus,
> Scitu', secunda loquens in tempore, commodu', verbum
> Paucum, multa tenens antiqua sepulta, vetustas
> Quem facit et mores veteresque novosque tenentem,
> Multorum veterum leges divomque hominumque;
> Prudenter, qui dicta loquive tacereve posset.

We append below personal appreciations from three of Dr. Glover's oldest friends and colleagues.

Sir John Tweedy writes to us as follows: "The death of Dr. Glover has given a shock of pained surprise to a large number of persons and I willingly accede to your request that I should attempt the melancholy task of writing a few words about his work, more particularly his connexion with medical journalism and politics. It is within a few months of thirty-seven years since I first became acquainted with Dr. Glover. He was then in the prime of life and at the zenith of his mental powers. He had already acquired an established position in medical practice and was an authority in most matters relating to medical politics and economics. His strong, earnest, and gracefully grave countenance was a truthful index to his mental and moral character. Always courteous but self-reliant he gained many a friend and disarmed many an opponent now by a kindly word, now by a sly touch of humour, now by a sharp and telling thrust



JAMES GREY GLOVER, M.D. EDIN., J.P.



of argument. When I first knew him he was a practised and trusted writer. With him the style was the man. His writings were always lucid without glare, limpid but never shallow, sober but never dull, persuasive without softness, cogent without acerbity. Even when one differed from him in opinion it was impossible not to admire the sincerity of his convictions. Whatever he said and wrote was governed by a keen sense of responsibility, by a genuine desire to do and say what was *right*. Unselfish to the last degree he strove only for those things which he believed would enhance the honour and the usefulness of the medical profession and insure the health, happiness, and prosperity of the people. Briefly, Dr. Glover's life work was the outcome of a fine and cultivated intellect, a just, generous, and religious spirit. His memory will linger pleasantly in the hearts of all who knew him, while his loss will be long deplored by a large circle of patients and friends, and by none more acutely than the small and dwindling band of brothers who, a long generation ago, were associated with him in the honourable labour of medical journalism and medical politics."

Dr. W. Bruce of Dingwall writes: "The world is distinctly the poorer by the death of Dr. James Grey Glover of Highbury. Of how few of us after passing the allotted span of threescore and ten could that be said with truth. Not that there are not plenty of younger men, including his own talented son, to fill his place as a physician. But his was a shining light to his contemporaries, in so far as he was a remarkable example of a man whose sense of right and wrong was so plain and evident to all. Not for a moment did he ever waver when his conscience told him where his duty lay. To none are those lines of Horace more applicable—

'Si fractus illabatur orbis,
Impavidum ferient ruinae.'

Dr. Glover possessed in an eminent degree the literary faculty not only of writing but in speaking his mother tongue with force and eloquence. To the end of his days he could quote largely and freely from the classic English authors. To those who were fortunate enough, like myself, to meet him when he could freely unbend, it was (and remains) a delight to have heard him declaim *ore rotundo* from Shakespeare, Milton, Pope, Byron, or other author some fine passage which his memory continued to retain as vividly as ever. As an old colleague of Dr. Glover on the General Medical Council I can truly testify, as doubtless will others of his fellow members, to his great interest in the work of the Council, as also to the respect with which his weighty words were listened to in that assembly. He worked very hard in the attempt, which unfortunately failed, to bring club doctors and club managers together on equal terms, yet the meetings of the Council's committee and the representatives of the great friendly societies parted, I am sure, with the greatest regard for each other. If it were allowable to withdraw the veil which properly is drawn over our friend's private life and his domestic surroundings, much might be said of the complete happiness of his home and of the high Christian conduct which guided his whole conduct and behaviour. With his sorrowing widow and family we must all feel deep sympathy for their irreparable loss of a loving husband and father."

Dr. J. P. Steele writes: "The Edinburgh school when Glover frequented its classes and graduated in its Senate-hall was at its best. In physics and chemistry, the professors were James D. Forbes and William Gregory; in anatomy, John Goodsir who, with philosophy and imagination, lifted the subject out of detail and made it intellectually, and even morally, fascinating; in physiology, Hughes Bennett; in surgery and obstetrics Syme and Simpson, the latter (as THE LANCET in its obituary notices of the two expressed it) the 'Napoleon, the former the Wellington' of their respective fields—the one brilliant in resource and initiative, the other minimising the chances of defeat; in materia medica, Christison; in pathology, Henderson; in practice of medicine, William Pulteney Alison, brother of the historian of Europe and uncle of the 'hero of Tel-el-Kebir.' It was the last-named professor who was Glover's favourite—not only for the breadth and depth of his teaching but for the high moral principle that, in address and in practice, glowed from him like a halo. Alison figures in Carlyle's 'Heroes and Hero-Worship' as the type of the philanthropic practitioner, as the 'Beloved Physician' not only in the gilded chambers of the rich but in the haunts 'where poor men lie,' as one who more than merited the eulogy of the Stoic satirist—

'Incoctum generoso pectus honesto'

(a nature imbued with a high-born sense of honour). All through life Glover was never tired of dwelling on the obligations under which Alison had laid him, and, to the best of his lights and his abilities, whether as a general practitioner, or as a medical journalist, or as a Member of Council, or as a citizen, he strove to do credit to the professional Gamaliel at whose feet he had sat. Long after Edinburgh had outlived her halcyon days, he maintained a warm side to her school—indeed, the only occasions when his kindly good nature would seem to have deserted him were those on which some critic, not always ill-inspired, ventured to contrast her present with her former self. But he would recover his equanimity in a moment, as he reflected that if Edinburgh, like Rome—

'Non è più com' era prima,'

(is no longer what she once was) she has but herself to thank, dethroned, as she is, like Saturn, by her own progeny who have from time to time been transferred to other schools, old and new."

The portrait represents Dr. Glover about 15 years ago.

JOHN TAYLOR, M.R.C.S. ENG., L.S.A.

THE death occurred at his residence at Ticehurst, Sussex, on Oct. 10th of Mr. John Taylor, at the age of 73 years. He first entered the army and served on the Army Medical Staff during the Crimean War and afterwards was surgeon on the s.s. *Calcutta*, having charge of military invalids during the Indian Mutiny. Returning home he settled at Emsworth, Hants, and took the diplomas of M.R.C.S. Eng. (1858) and L.S.A. (1859). In the year 1864 he removed to Ticehurst where he soon made a name for himself not only in the immediate district but over a wide area of East Sussex. It was not long before his practice became a large one, for John Taylor was highly esteemed by both rich and poor, on whom he spent equal skill and pains. In 1874 he contributed "A Successful Case of Colotomy" to THE LANCET, followed five years later, also in these columns, by an account of an operation for recto-vaginal fistula with imperforate anus in an infant. For many years he was one of the medical officers of the Ticehurst Union and also surgeon to the local Foresters' Court. It was at Ticehurst that he devoted the best years of his life until latterly his failing eyesight became such a source of anxiety to him that he was compelled to retire from the profession. It was a great blow to him to give up his work, but a greater yet was in store for him, for in 1902 his eyesight completely failed. During the last years of his life he was devotedly cared for by his wife and children.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. N. Gundobin, professor of children's diseases in the St. Petersburg Military Medical Academy, aged 48 years.—Dr. A. Tauber, formerly professor of operative medicine in the St. Petersburg Institute of Medicine for Women.—Dr. Friedrich Bezold, court councillor and professor of otology in the University of Munich, at the age of 66 years.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The University.

IT is stated that the number of students, as contrasted with last year, has increased in every faculty and that in the medical faculty the entry is larger than in any of the past nine years except 1906, which was a record year. Certainly all the class-rooms and laboratories seem full of life and everyone has settled down to the routine of the winter's work. So far as the medical faculty is concerned there are few changes in the staff. Dr. R. A. Lyster has resigned his assistantship in the department of forensic medicine and toxicology, and Mr. George Heaton has resigned his position as assistant to the professors of surgery. Neither post has yet been filled, though it is probable that the council will fill the surgical vacancy in a short time.

The Opening of the Birmingham Sanatorium.

The sanatorium at Salterley Grange was opened last week

by the Lord Mayor, Alderman Sayer, and an interesting municipal experiment has been commenced in particularly favourable circumstances. The situation has been well chosen and is particularly well adapted for its purpose. It is 800 feet above sea level; the chalets are placed on a southern slope and are protected on the east by a pine wood, they are built of brick, have slate roofs, are lined with plaster, and the floors are solid concrete to which a covering of linoleum is cemented. The windows open outwards and are arranged so that free through ventilation can be readily secured whilst rain and snow are excluded, and each room is provided with a small stove which is intended for use only in very inclement weather. It is proposed that each patient shall remain in the sanatorium not less than three months, during which he will not only be in favourable circumstances and under careful observation, but he will also learn lessons in sanitation, cleanliness, and ventilation which it is hoped he will inculcate into others when he returns home. There are baths in association with the chalets, but although they are both desirable and will no doubt prove very useful, sponge baths are also provided in the rooms, and the patients will be encouraged to use sponge baths and so cultivate a habit which they can easily continue when they return home.

The Hospital Saturday Fund.

At a meeting of the board of delegates held on Oct. 12th last it was stated that the amount received up to that date was £20,469, a total which exceeded the amount subscribed last year by £360. The committee recommended that £10,000 should be distributed amongst the Birmingham hospitals and certain other institutions on the same lines as last year, which means that the General Hospital will receive £3150, the Queen's Hospital £2100, the General Dispensary £1040, the Children's Hospital £800, the Women's Hospital £500, and other hospitals and nursing institutions sums varying from £400 to £10. The committee thinks that the result is very satisfactory, especially when the trade depression is taken into consideration, and it attributes the successful result to a growing appreciation of the work done by the fund and more especially an appreciation of that part of the work associated with the convalescent homes for men and women at Llandudno and the convalescent home for children at Great Barr. It may be inferred, therefore, that the hospitals need expect no increase in the amount of the fund devoted to their interests.

The Health of the City.

The death-rate, which reached 20 per 1000 during the week ending Sept. 18th, fell steadily after that date till the week ending Oct. 10th, when it was reduced to 11·8 per 1000; last week it rose slightly to 12·8 per 1000. During the same period the zymotic death-rate has varied from 1·9 to 1·6 per 1000, and the number of scarlet fever and diphtheria cases in the hospital has risen slowly but regularly. During the week ending Sept. 18th there were 274 scarlet fever patients and 63 diphtheria patients. During the following week the scarlet fever cases rose to 284 and the diphtheria cases to 66. During the two following weeks the number rose to 300 and 67 respectively, and last week there were 307 scarlet fever cases and 71 diphtheria cases. On the whole the health of the city is good and the outlook favourable.

The Birmingham Edinburgh University Graduates' Club.

The Birmingham Edinburgh University Graduates' Club had a very enjoyable evening on the occasion of their twelfth annual dinner which was held at the Grand Hotel on Oct. 15th. Professor A. Crum Brown was the guest of the club and in responding to the toast of the University of Edinburgh, proposed by the President, Dr. J. Douglas Stanley, he recalled many incidents of the period during which he occupied the chair of chemistry and told amusing tales of examiners and candidates. With the exception of Professor Crum Brown's response the speeches were few and short but the evening passed rapidly, enlivened by the humorous monologues of Dr. Sydney Partridge and Dr. Whaite and by the songs of Dr. G. H. Mounsey and Dr. Macleod Munro.

Medical Inspection in Warwickshire.

Dr. A. Bostock Hill, who believes that great advantages will eventually result from the medical inspection of school children, has arranged a series of conferences with head teachers. The first of the conferences was held at Erdington on Sept. 10th when Dr. Bostock Hill appealed for the help of the teachers and pointed out that although 12,000 children were to be examined this year the work could be done within the period of the school year. He said that the inspection was only a means to an end, the end being the amelioration of all the conditions which were inimical to the health of the children. In the discussion which followed questions were asked regarding the circumstances which would necessitate the temporary closing of schools and Dr. Bostock Hill, in replying, stated that, in his opinion, schools should be closed when a reasonable proportion of children were affected with measles and during outbreaks of diphtheria. In most other cases closing was unnecessary and the exclusion of the sick children was sufficient.

An Effect of the Last Vaccination Legislation.

At a recent meeting of the King's Norton board of guardians it was reported that there was a steady increase in the birth-rate of the district, a diminution in the number of vaccinations, and a considerable increase in the number of exemption certificates. The increase in the number of exemption certificates is attributed to the fact that under the last Act the applicant can get an exemption from a magistrate without having to go before a court. Under the new Act the fees paid are considerably less than was the case previously and the result, so far as King's Norton is concerned, is a saving of £100 a quarter; this is, no doubt, considered to be a great advantage and it can only be hoped that the small part of the advantage due to the diminished number of vaccinations will not eventually prove to be very dearly bought.

Oct. 20th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Liverpool Water-Supply: The Disposal of the City's Refuse.

AN idea of the gigantic dimensions of the Liverpool water-supply was given on Oct. 6th by the chairman of the water committee of the city council in quoting figures relating to the number of gallons distributed during the past 12 months and the population supplied. The measure of water in gallons supplied to over 1,000,000 people of Liverpool and neighbourhood from Rivington and Vyrnwy amounted to 11,600,000,000 gallons. This represents about 1,500,000 gallons a day increase. Never once were the resources taxed in the year, not even in the dry weather of the early summer. Liverpool could supply with ease a larger population and if the negotiations recently reopened are brought to a successful issue Birkenhead will draw its supply from the same source. An interesting example of the progress and improvements made in disposing of the city's refuse also came to light. The corporation has just sold one of its mud hoppers for £1000, having no further use for its services. This was accounted for by the fact that whereas 88,000 tons of refuse were previously taken out to sea annually, only 40,000 tons are now so treated. The refuse destructors that have been built do the rest. This ought to make for less river pollution, but the aspect of the Seacombe and Egremont shore at low water scarcely verifies the suggestion.

Liverpool Select Vestry and the Treatment of Tuberculosis.

At a meeting of the select vestry held on Oct. 10th expression was given to the opinion that open-air treatment for consumptives, so far as it bears on the local operations of Poor-law guardians, is scarcely all that could be desired. The chairman of the workhouse committee reported that, as representative of the vestry at the recent Poor-law conference in Ulverston, he had spoken in opposition to the proposal that guardians should establish sanatoriums for consumptives, commending instead preventive work, such as that carried on by the Liverpool medical officer of health and his staff in the better housing of the people and the improvement of sanitary conditions. He added that the treatment of consumptives at the Heswall Sanatorium costs as much as £3 per week per patient and the vestry had had to pay sums of from £75 to £100 for patients whom it had sent to Heswall for treatment.

The Prevention of Malaria in Mauritius: Report of Professor Ronald Ross, C.B., F.R.S.

Professor Ronald Ross of the University of Liverpool, in his report on the prevention of malaria in Mauritius, recommends a vigorous campaign which will cost about £9000 a year. The destruction of many of the breeding-places of the malaria-carrying mosquitoes and the free distribution of quinine amongst infected persons form part of the scheme.

West Derby Guardians and the Accommodation for Aged Poor.

Mr. J. Lowry, Local Government Board inspector, was present at the last meeting of the guardians of the West Derby union and made remarks with reference to the proposal to build an institution on land at Alder Hey, West Derby, for the accommodation of chronic cases of bedridden old men and women. He said that the classification scheme, which was the great boast of the guardians some years ago, had to some extent broken down owing to the large increase which had taken place in the number of cases of old and enfeebled people. On an average there were at least 160 new cases in one or another of their establishments in the course of each year, and it was obvious that, as the population of the union grew and was growing, it was not likely that anything the guardians could do was going to reduce that increase. In these circumstances he regretfully came to the conclusion that further accommodation was necessary for this class of cases.

Annual Medical Church Service.

St. Luke's Church, Liverpool, was well filled on Oct. 18th (St. Luke's Day) on the occasion of the annual service specially arranged for the members of the medical profession. Amongst the officiating clergy were the Bishop of the diocese, the Archdeacon of Liverpool, and the Rev. J. B. Lancelot, Principal of the Liverpool College. The Very Rev. W. Page Roberts, Dean of Salisbury, was the preacher. The members of the medical profession occupied the nave of the church. The Lord Mayor (Dr. Richard Caton) and the Lady Mayoress were present. The offertory taken at the close of the service will be devoted, as in former years, to the British Medical Benevolent Fund. I understand that the net proceeds, after deduction of incidental expenses, will realise over £20.

Oct. 20th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Edinburgh and Leith Medical Practitioners' Association.

THIS association, the origin of which was referred to in THE LANCET last week, held what may be regarded as its inaugural dinner on Oct. 16th. The chair was occupied by Dr. W. Nicol Elder, the President of the association, and about 130 members and friends sat down to dinner. The toast of "The New Association" was proposed by Dr. Norman Walker and responded to by the chairman. The proceedings were enlivened by songs and stories. It is thought that the association may be a means of social intercourse, while at the same time it will be prepared to take action in connexion with club practice and public appointments of different kinds.

The Lord Rectorship of the University of Edinburgh.

The term of office of the Right Hon. R. B. Haldane as Lord Rector of the University of Edinburgh having nearly expired, the students are busy with the candidature of their candidates for the office. The Unionists are running the Right Hon. G. Wyndham, the Liberals the Right Hon. Winston Churchill, while a third and non-political candidate is being run in the person of Professor W. Osler of Oxford. The election is usually political unless the two parties combine to support some man of outstanding repute in literature or in science. Professor Osler has many warm supporters, especially in the Faculty of Medicine, but if political feeling runs high, as it promises to do, the forecast is in favour of one or other of the political candidates.

Extension of the Glasgow Medical School.

As a result of certain communications relating to medical teaching at the Royal Infirmary, Glasgow, and addressed to the University Court, a committee was appointed last March to consider what steps should be taken to bring about a more equal distribution of students between the Western and Royal Infirmaries. At a meeting of the University Court recently the committee presented its report. In making certain suggestions it has not overlooked the fact that, owing to the proximity of the Western Infirmary and the special facilities which it affords for university instruction, the majority of the men students will continue to resort to it for their clinical work. The Royal Infirmary will always be at some disadvantage on account of its distance from the University. But the committee thinks that in view of the expansion of the medical school which may reasonably be expected to follow upon better organisation and an extended field, it appears desirable that this disadvantage should not be increased by the lack of a definite and mutually beneficial connexion between the two. The managers of the Royal Infirmary and the important bodies which are coöperating with them in this matter propose not only to provide the University with endowments amounting to about £1800 a year, which will suffice for the establishment of chairs in the subjects taken by students in the final stages of their course, but also to provide facilities, satisfactory to the University, for instruction which shall be open on equal terms to women and to men. In other words, they propose to enter into an arrangement with the University which is substantially the same as that now subsisting between the latter and the managers of the Western Infirmary. The following are the proposals submitted by the committee to the University Court:—

1. That the professorship of clinical medicine, and at the next vacancy the professorship of clinical surgery, be transferred from the Western Infirmary to the Royal Infirmary.
2. That in consideration of the stipend of each of these chairs being increased to (say) £500 a year, by means of funds procured by the Royal Infirmary, St. Mungo's College, and others coöperating with them, the professors be in future required to give systematic as well as clinical instruction at the Royal Infirmary.
3. That the election to the chairs be made by a board of curators, including representatives of the Court and of the Royal Infirmary.
4. That a committee of selection be appointed at the Royal Infirmary and a similar committee at the Western Infirmary, each including representatives of the University Court, which shall be empowered to nominate any of the respective physicians and surgeons in charge of clinical wards for appointment by the Court as University lecturers in clinical medicine or clinical surgery.
5. That the same committees of selection be empowered on the occasion of future vacancies to propose for election by the managers of each institution suitable persons to be appointed to the office of full physician or full surgeon in charge of clinical wards.
6. That in addition to the examiners who are professors *ex officio*, the lecturers in clinical medicine and clinical surgery be eligible in rotation for appointment by the court as lecturer-examiners for the final examinations.
7. That the fees paid by matriculated students for systematic courses conducted by the professors be paid into the general fee fund as at present; and that the fees paid for clinical courses conducted by the professors and lecturers be paid into a clinical fee fund, from which the stipends and class expenses of the lecturers (for teaching and examining) may be paid.
8. That the number of students attending a qualifying class for clinical instruction shall not exceed a limit to be fixed by the University Court.
9. That the managers of the Royal Infirmary, with the coöperation of the Muirhead trustees and others, provide funds for the endowment in the University of two new chairs, one for the teaching of pathological anatomy, the other for the teaching of obstetrics and gynæcology, to students attending the Royal Infirmary; and further undertake to provide facilities satisfactory to the University for teaching and examination in medicine and surgery and in the subjects of the new chairs.
10. That the election to the new chairs be made by a board of curators similar to that mentioned in No. 3 above.
11. That qualifying courses of instruction given at the Royal Infirmary by professors or university lecturers be open to all matriculated students on the same terms without distinction of sex, provided that the University may, for special reasons and with the concurrence of the managers, prescribe that particular courses or parts of courses shall be given to men and to women separately.
12. That the foregoing provisions as to fees and classes for clinical instruction do not apply to any existing professor until he shall have signified his assent thereto.

If such a scheme as the above be approved by the University Court before it can be carried into effect one or more provisional orders and certain new ordinances will be necessary. In the meantime it is probable that the court will postpone the election of a professor to the vacant chair of clinical medicine until it has arrived at a decision as regards the scheme which has been put forward by the committee.

Clinical Instruction in Obstetrics in Glasgow.

By the enterprise of the directors of the Maternity Hospital, under the guidance of the medical staff, it will now be possible to take full advantage of the clinical material available for the teaching of obstetrics in Glasgow. From the statistics of the hospital in the past it is evident that a great

number of pelvic deformities and other complications occur in its practice, frequently necessitating the performance of all the different kinds of obstetrical operations. The difficulty hitherto has always been that the accommodation and arrangements for enabling students to see the work were so meagre that full advantage could not be taken of the material for teaching purposes. The new hospital, which is up-to-date alike in structure and in appliances for treatment, will present a field for clinical instruction and post-graduate work that cannot be rivalled in the United Kingdom. Within a few months there will be opened a gynæcological department of at least 40 beds. By these provisions the University of Glasgow has been enabled at once to adopt the new conditions for the examination of students in clinical obstetrics. The establishment of a comfortable residence accommodating 15 students at the hospital makes it possible for the students to be called to all emergency cases, in addition to attendance at the regular daily clinique.

A New Hospital for Dunoon.

The Dunoon District Cottage Hospital, which has been built and equipped at a cost of £4000, was opened last week by Princess Louise, Duchess of Argyll. The hospital has an ideal site. The exposure is excellent with a commanding view of the firth. In the main block there are two wards with provision for 12 beds. An excellent operating theatre has also been provided and there is suitable accommodation for the staff.

Aberdeen Royal Infirmary: Gift from the Prince of Wales.

The Prince of Wales has by the hands of Professor D. W. Finlay sent a donation of £50 to the funds of the Aberdeen Royal Infirmary in recognition of the treatment of his late servant, Finlay Cameron. At a meeting of the board of directors held on Oct. 14th the desire was expressed that Professor Finlay would, in acknowledging the donation, convey to His Royal Highness the board's most grateful thanks for the gift, which was considered not only valuable in itself but calculated to stimulate liberality in others.

Aberdeen University Court: The Retirement of Professor Hamilton.

At a meeting of the Aberdeen University Court held on Oct. 13th Principal Lang referred to the retirement of Professor D. J. Hamilton. Reference had already been made at a previous meeting by Professor Hay and other members of the court to the very great distinction with which Professor Hamilton had occupied the chair of pathology since its foundation in 1882, and the great value of his service to the University and to science as a teacher of unsurpassed power and an investigator of the first rank. There could be only one feeling, and that a feeling of deep and sincere regret that he would no longer be one of their staff of teachers and that he had left a service which extended over 26 years and had shed a lustre, not only on his own department, not only on the medical school, not only on the four Scottish Universities, but on a very wide area beyond. They would always recollect their illustrious friend—the first professor of pathology in the University—his geniality of nature, and the loyalty of his coöperation in all affairs of the University that he so sincerely loved. Honours and sorrows were mingled together in the later years of Dr. Hamilton's occupancy of the chair.

Opening of the Winter Session at the University of Aberdeen: Impending Retirement of Professor A. Ogston.

The winter session of the University of Aberdeen opened on Oct. 13th. There was a large attendance at all the classes. In the surgery class Professor Ogston announced that he intended to retire at the end of the present academic year, saying that owing to the great advances which surgery was making the conduct of such a department was work for a young man who had all his life before him and not for him who had practically all his life behind him. He had been professor of surgery for 26 years and felt that the time had come when he should retire. Professor Ogston is a son of the late Professor Francis Ogston and graduated at the University of Aberdeen with highest honours. He studied at the Universities of Vienna, Prague, and Berlin, and later visited most of the leading medical schools of Europe. He commenced practice in Aberdeen in 1866, and until 1873 was assistant to his late father as professor of forensic medicine in the University. From 1868 to 1870 inclusive he was ophthalmic surgeon to the Aberdeen Royal Infirmary, and to 1874 aural surgeon. From 1873 to 1876 he was examiner for medical degrees in the University of Aberdeen. In 1882 he was appointed professor of surgery. Professor Ogston went to Egypt in 1885 and was in action near Hasbeen. He was awarded the Egyptian war medal and the Khedive's bronze star for the efficient assistance and personal bravery displayed during his stay in Egypt. Professor Ogston ranks among the greatest surgeons and operators both of this country and of the continent.

Semi-Jubilee of Dundee University College: New Physics and Electrical Laboratories.

The Semi-Jubilee of University College, Dundee, was signalised on Oct. 10th by the presence at the annual meeting of governors of the Right Hon. John Sinclair, M.P., Secretary of State for Scotland. Following this meeting there took place the ceremony of the laying of the foundation-stones of the new physics laboratory and of the new Peters electrical engineering laboratory. These buildings, the former of which will cost £12,500 and the latter £4000, are situated to the rear of the Union Mount property. The opening ceremony was performed by the Hon. Lady Marjory Sinclair in the presence of a large assemblage of the professoriate and students. At the close of the ceremony a reception was held in the College gymnasium.

Oct. 20th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Sanitation of Dublin.

THE report of the public health committee on the state of the health and sanitation of Dublin was before the corporation at last week's meeting. Alderman Kelly, who moved the adoption of the report, called special attention to the gratifying fact that the death-rate was below the average of what it had been for a long period of years and that in last June it had fallen to the lowest figure on record. He took the opportunity of adding, "Dublin could never be in a satisfactory position with regard to its death-rate until the council applied attention to the removal of the city slums." Another member emphasised the fact that the death-rate, however low—comparatively—at present, still continued to be the highest in the kingdom. The corporation Bills which the citizens rejected a few months ago were opposed by Alderman Kelly and his party, who represented that the powers already possessed by the corporation were amply sufficient, if vigorously utilised, to eradicate all the evils under which the tenement house dweller of the city had suffered so long. Alderman J. C. McWalter, who had strongly supported these Bills, now demanded what their opponents had done to prove the truth of their assertions. Alderman Kelly, in replying, stated that while the burning question of the sanitary housing of the poor "presented great and grave difficulties" the "greatest and gravest of all was the interference of that council with sanitary officers."

Adulteration of Milk in Dublin.

The Recorder of Dublin has recently made a vigorous stand against the sale of adulterated milk in hearing an appeal from a sentence of six weeks' imprisonment passed by a police-court magistrate on Mr. H. Redhouse, dairy-keeper, for having sold milk which was adulterated with 10 per cent. of added water. It was shown that the defendant had several times previously been convicted of adulteration of milk and was actually fined £5 on the last occasion. An effort was made to lay the blame of the adulteration on a brother who managed the dairy farm. The appellant said that he had dismissed his brother from the management of his farm and promised that it would not occur again. The Recorder refused to "be taken in with talk of that kind from a man who had been convicted before and might have been fined £50 on the last occasion." He had previously remarked that the business of adulteration of milk meant simply the absolute murder of young children. Not only was the defective milk a cause of wasting in children, but it was a direct producer of intestinal and other diseases most detrimental to infant life. So far as he was concerned, he would use every effort to stamp out this fearful

evil in the city. He allowed the present case to stand over till Nov. 13th, affirming the conviction but leaving the question of sentence to future consideration.

The School of Surgery, Royal College of Surgeons in Ireland.

The winter session of the School of Surgery of the Royal College of Surgeons in Ireland was inaugurated on Oct. 15th by Mr. J. Lentaigne, the President of the institution, who distributed the prizes of the previous session. He took the opportunity of calling attention to the fact that owing to recent university legislation the surgical school of their College would be the only unendowed and unassisted one in Ireland, for Trinity College had always been a well-endowed institution; the "Cecilia-street school" is about to disappear and re-emerge as the medical school of the new Irish University; while large additional endowments would accrue to the provincial schools of the Colleges of Cork, Galway, and Belfast. The President pleaded that as their own College had expended large sums of its funded capital in the effort to maintain its school at a high standard it could confidently appeal to the Government for protection from what would be a great "injustice," the being left to compete with liberally endowed teaching bodies both in Dublin and in the provinces.

Suicide by Strychnine Poisoning.

A case of suicide by strychnine poisoning was the subject of an investigation by the coroner for Dublin last week. The deceased was a vanman and had been out of employment for a week; according to his son's evidence he had "got a fall off a van ten years ago or more and his head was split. He was never the same after that when he would take a drink." He had purchased 20 grains of strychnine at the shop of a pharmaceutical chemist who knew him and to whom he represented that the poison was for a dog which was shut up mad at home and could not, accordingly, be brought out. He came home under the influence of drink, had some dinner, and then went to his bedroom and lay down. His daughter heard heavy moaning and found him "working as if in great pain." He told her and her brother that he had taken poison and they had him removed to Jervis-street Hospital, where he died shortly after admission. On procuring the strychnine at the druggist's he had signed his name in the usual poison register, thereby complying with the law. A copy of the Act of Parliament was produced by the druggist at the inquest. The coroner stated that he thought it "a very serious state of affairs that there is nothing to prevent any man getting poison and destroying himself or anybody else according to that Act." Medical men will probably agree in general with the opinion that further legal restraints are desirable in the sale of poisons—without even a physician's prescription.

Enteric Fever at Clontarf.

The epidemic of enteric fever still continues to hold its sway in Clontarf and has naturally given rise to general public interest in Dublin and to vigorous comments and important queries in the daily press. The solicitor of the milkman whose dairy was popularly incriminated again wrote at considerable length to the Local Government Board requesting a thorough investigation in the form of a sworn inquiry. He suggested that attention should be directed to certain points which would tend to clear his client from blame and would lay it on the public authorities who undertook excavations near his dairy. Many contradictory views have been expressed as to the cause of the trouble, and I am inclined to attach considerable importance to the following paragraphs taken from a letter written on the subject by Mr. J. Picton Bradshaw, a Clontarf resident:—

Sir Charles Dallymount informs us that the filling of the Slobland Park is composed of street sweepings, &c. The "&c." is certainly three-fourths of the whole, and, as was clearly proved by recent sworn evidence, consists of the contents of ashbins and other vile and filthy refuse from the tenement slums and other premises, together with tons of decaying vegetable matter removed from various parts of the city of such an offensive nature that it is absolutely necessary to bring it through the city in covered carts. It is dumped at Fairview, scattered by workmen, turned over again by rag-pickers, while the high winds so prevalent along the shore road carry the smell, dust, and no doubt the microbe, far and near. Further, very recently a long deep trench was cut for main drainage purposes alongside the wall through refuse dumped there some time ago. The trench was some hundreds of yards long and the condition of the soil spoke without comment.

Most of the houses in which the disease is located are not the old but actually the most modern, up-to-date, and recently built residences, all of considerable size, the drains, &c., of which have very recently been passed by the corporation officials.

There is no doubt the recent heavy rains, followed by the exceptional heat and succeeded by the dry strong winds, have bred and scattered disease, carried on papers, dust, and other refuse over the Slobland Park, assaulting the pedestrians, tram and other passengers through Clontarf, and when we contemplate the probable source of these unpleasant missiles, and that they may be impregnated with germs from some typhoid-stricken slum tenement, we are filled with wonder we have so long escaped.

A Remarkable Rescue from Drowning.

The public recognition of a truly heroic rescue from death by drowning was celebrated by the urban council in Wicklow on Oct. 11th, when the brothers, Messrs. Edward and John J. Kennedy, were presented with the vellum certificates of the Royal Humane Society for rescuing a post-office employee who had sunk in 15 feet of water in Wicklow harbour last July. The event is of medical interest, for the Silvester method of artificial respiration was applied to the rescued lad for over an hour with no signs of success, and the onlookers gave up the case as hopeless. The brothers' efforts were, however, supplemented by police constables, and they were ultimately rewarded by seeing their patient gradually restored to animation. The degree of exhaustion was so great that he was detained for several weeks in the Wicklow Hospital before recovery could be pronounced complete.

The Belfast Medical School.

Work began in the Belfast Medical School for the present winter session on Oct. 20th, when the opening address was given in the Royal Victoria Hospital by Professor W. St. C. Symmers. The lecture, which was most humorous and full of sound advice, advocated the importance of pathological study. Sir W. Whitla presided and at the conclusion of the address a hearty vote of thanks was awarded to Professor Symmers, on the motion of Sir John Byers.

Oct. 19th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Twenty-first French Surgical Congress.

IN my letter last week I described a part of the proceedings at the opening session of the Surgical Congress. Professor Forgue at the conclusion of his address pronounced a panegyric upon the members who have died during the course of the year. Their names are all so well known that I need only mention them. Hoffa (Berlin), Reboul (Nimes), Loison (Military Medicine), Harrison (Liverpool and London), Folet (Lille), Reverdin (Geneva), and Terrier, our great French surgeon. The discussion of papers followed. The first, which dealt with the Surgery of the Biliary Ducts, was opened by M. Delangenière (Le Mans) and M. Gosset (Paris), and 14 other speakers took part in the debate. In the gynæcological section one of the most interesting of the first day's papers dealt with the Treatment of Extra-uterine Pregnancy. This was communicated by M. Albertin who has operated 62 times for this condition, 30 times by laparotomy and 32 times by the vaginal route. In dealing with severe hæmorrhage into the peritoneum he considers that it is sometimes an advantage not to be in too great a hurry to do laparotomy during the condition of shock, which, he says, is induced by the rupture of the tubal pregnancy rather than by the bleeding. A waiting policy for two or three days may afford an opportunity of operating under exceptionally favourable conditions. The 30 laparotomies, all of which resulted in cures, were done for non-infective cases. The colpotomies, of which two ended fatally and 30 successfully, were only performed for septic hæmatoceles. M. Albertin would reserve this operation for cases with large masses of infective blood clot in the pelvis and in which hæmorrhage is not the urgent indication. A very interesting discussion followed in which M. Pozzi, whose opinion carries great weight, said that he could not agree with this counsel of delay in dealing with patients suffering from sudden and severe intra-peritoneal hæmorrhage, for it might very likely cost them their lives. He urged that not a moment should be lost in performing laparotomy in a case of ruptured extra-uterine pregnancy. He had operated during the stage of shock upon patients who would certainly have

died if he had held his hand. He laid down the general rule that all cases diagnosed as extra-uterine fœtation before the fifth month should be operated upon. After that time, on the other hand, a policy of "armed expectancy" might be adopted. M. Pozzi also differs from M. Albertin as regards colpotomy in septic cases because it is generally impossible to make sure as to whether a given case comes under that category. M. Pozzi said that he had often operated upon patients with a temperature of 40° C. and found nothing but simple clot. This interchange of opinions led to a brilliant debate between M. Delanny, M. Duret, M. Chavannaz, and M. Reynes. The treatment of absence of the vagina by plastic operations was also well discussed. M. Abadie sinks an artificial vagina between the bladder and the rectum, and lines it with skin grafts obtained by Thiersch's method, following a technique which he has seen Professor Forgue employ. All his grafts, except one, took capitally. M. Pozzi advocates that the artificial passage should be made as deep as possible. He cuts a plastic skin-flap to line its posterior wall only and directs the patient to wear permanently a perineal appliance provided with a rubber ball to maintain the patency of the vagina. M. Roux (Lausanne) lines the artificial passage with mucous membrane dissected from the labia minora and turned upwards, a plan which gives excellent results. M. Novaro has tried a plastic method, applying skin flaps to both anterior and posterior walls. M. Fournier has adopted the plan of slitting the labia minora. Progressive dilatation resulted finally in an artificial vagina of sufficient capacity. M. Péraire has attempted to re-establish continuity with the uterus and his patient lost a few drops of menstrual blood through a filiform passage. After making an artificial vagina by combining a simple incision with an auto-plastic turning up of flaps he used bougies to prevent the occurrence of stenosis. The operation was done nearly a year ago and the successful result has been maintained. Turning to general surgery again, M. Patel spoke on the treatment of gastric fistulas by jejunostomy. He treated a man aged 32 years successfully for a gastric fistula situated low down; the patient had entered hospital with all the signs of a subphrenic abscess, which was opened, and two days later the fistula was found. M. Patel did a lateral jejunostomy without delay with an immediate relief of the symptoms and later a cure of the fistula. Unfortunately the patient was suffering from cancer of the stomach and died six months later from cachexia.

The Treatment of Nephritis by Serum-Therapy.

M. Teissier of Lyons read before the Academy of Medicine on Oct. 6th a paper which is likely to attract a good deal of attention. It dealt with the treatment of nephritis. Continuing some experiments of Turbure, under the encouragement of results obtained from renal opotherapy (both by M. Renaut's plan of macerating whole kidneys of pigs and by using extracts of renal tissue), M. Teissier has injected patients suffering from nephritis with serum obtained from the blood of the renal vein and consequently containing the bodies elaborated by that organ. He employed the blood of a dog for this purpose and he is now using horse's blood which is notably less toxic. From 15 to 20 cubic centimetres of the serum have been injected every three, four, or five days beneath the skin of the abdomen of patients suffering from nephritis of widely varying types, some being in a state of pronounced uræmia. The effect has been rapid. The uræmia has cleared up, the coma and vomiting have ceased, and the albumin in the urine has diminished. These results are extremely interesting, for if they are confirmed they will form one of the most valuable therapeutic discoveries of the present time.

A Combined Surgical and Electrical Method of Treating Cancer.

At a meeting of the Hospitals' Medical Society on Oct. 9th M. Juge and M. Keating Hart showed a series of cancer patients who had undergone incomplete surgical treatment followed by the "*fulgurations*" treatment of Keating Hart. The patients were chosen from 40 people suffering from serious orificial, lingual, or mammary cancer, for whom simple surgical treatment would have been futile. The combined method gave remarkable results, for many of them have remained for two years or more without recurrence.

Oct. 20th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Moveable Cæcum.

Professor Wilms of the Basle surgical clinic, writing in the *Deutsche Medizinische Wochenschrift*, discusses the causes of so-called chronic appendicitis. The writer says that in about 20 per cent. of cases of chronic appendicitis no acute attack has preceded the chronic stage. In these cases the appendix when removed by operation proves, as a rule, to be healthy, and on microscopical examination nothing abnormal is found except some slight traces of appendicitis; these slight microscopical alterations do not explain the pain in the so-called "chronic appendicitis," and indeed in a great many cases the pain and tenderness over McBurney's point continue after the removal of the appendix. He has found that in many of these cases the symptoms are due not to appendicitis but to an abnormal length and mobility of the cæcum. This may be ascertained by palpation of the ileo-cæcal region. By this procedure the loose cæcum in a contracted state offers a tumour-like resistance and on superficial examination it may even be confounded with a moveable kidney. The cæcum when filled with fæces is, owing to its length, liable to traction, and this is of course painful. Professor Wilms has devised a method of treating this morbid state by fixing the loose cæcum. The results of the 40 cases operated upon hitherto are said to be very good, even in cases where a previous appendectomy had proved useless. The operation is easy and not more dangerous than appendectomy, which was always done at the same time as the fixation of the cæcum. The suggestion that the success may therefore be due not to the fixation of the cæcum but to the removal of the appendix is, however, not borne out. In order to test the value of his procedure in five of these cases he did an appendectomy without producing any improvement. Chronic appendicitis may of course be cured by appendectomy only; this is the case when the mesentery of the appendix is too short, so that the cæcum when full exerts traction on it. When the appendix is removed and thus separated from the mesentery the traction of course ceases, and the success of the operation in these cases is thus not due to the removal of an alleged inflamed appendix but to mechanical causes. A mobile cæcum may often be present without causing any trouble but this is also the case in moveable kidney in which the pain is caused by traction on the nerves. In some cases of moveable cæcum the pains may be cured by internal medication, especially by regulation of the diet and by regular purgation of the bowels; but if medicinal treatment is not efficacious within some weeks fixation of the cæcum should be done.

The Medical Academy of Düsseldorf.

As I have mentioned already in these columns medical academies have been established in Cologne and in Düsseldorf. The primary object of such institutions is that medical candidates after having passed the State examination may spend at the academy the year of practice required by recent regulations; the second purpose is to supply medical men with opportunities for post-graduate study. The academies of Cologne and Düsseldorf are supported exclusively by the municipal authorities of these cities but the State without any financial liability has an influential voice in the management of academical affairs, such as the appointment of the staff. The municipal authorities were induced to supply the necessary funds by the hope that a great number of students would be attracted to their town, and that well-to-do patients from far and near would come to consult the professors of the academy and to be received in the paying wards of the academical clinics. These hopes have proved erroneous; candidates for a medical qualification desiring to perform their statutory year of practice required by the regulations came in small numbers only to the academy, for they preferred other towns where they could comply with the regulations by acting as clinical clerks and dressers and where they receive for their work free board and residence and in certain cases even a small salary. The paying wards of the academical clinics were not much frequented because the medical men of the city and of the neighbourhood, who

disagreed from the first with the establishment of the academy, did not send their patients there. The result was that the expenses of the academy were much higher than had been anticipated, and at a recent meeting of the Düsseldorf town council some members even suggested the dissolution of the academy. Although this suggestion was not adopted the enthusiasm of the Düsseldorf municipal authorities and of the ratepayers has dropped considerably. The Government had expected that other towns also would favour the establishment of academies but this is very unlikely after the experiences of Düsseldorf. The municipal authorities of Frankfort, where an academy had been planned, abandoned the scheme some time ago chiefly on account of the unanimous protest of the medical profession of the city.

Oct. 20th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Deaths from Wild Beasts and Snakes.

IN a resolution issued at Simla by the Home Department it is stated that the total mortality amongst human beings reported to be due to wild animals in 1907 amounted to 1966 as compared with 2086 in 1906. The total is the lowest on record since the practice of the collection of these statistics was initiated. The most noticeable variations from the figures of last year occur in Bengal, the United Provinces, and the Central Provinces, while in Madras there was a comparatively large increase of from 167 to 201 in the number of persons killed by tigers. In Bengal the mortality rose from 756 in 1906 to 840. In the United Provinces the mortality fell from 280 in 1906 to 159. The decrease is principally due to a noticeable decline in the number of deaths caused by wolves in the Allahabad division. The mortality in the Central Provinces fell from 262 in 1906 to 174 in 1907. The total mortality amongst human beings caused by snake-bite fell from 22,811 in 1906 to 21,418 in 1907. So low a figure has not been reached since 1897. The decrease is noticeable mainly in Bengal and Eastern Bengal and Assam where the figures fell from 8862 and 2730 in 1906 to 8276 and 1900 respectively in 1907. The most important increases occurred in Madras and Burma, where the figures rose from 1527 and 1149 in 1906 to 1977 and 1348 respectively. The highest mortality in Bengal occurred as usual in the Patna division, the number of deaths being 3393 as compared with 3636 in 1906. The decrease in Eastern Bengal and Assam is attributed to the floods having been lower. The figure for the Central Provinces (996) is the lowest returned in any one of the last seven years. The Lauder Brunton treatment of snake-bite by incision and application of permanganate of potassium and the distribution of lancets continue. It is too early yet to pronounce with any certainty as to the result of the experiment but a number of favourable reports have been received. Eight cases are reported from the United Provinces of the successful use of Dr. Calmette's antivenene. In two of these cases the permanganate of potassium treatment was also employed. Colonel R. D. Murray, I.M.S., Inspector-General of Civil Hospitals of the United Provinces, gives illustrations as to the value of the anti-venomous serum and permanganate of potassium in the treatment of snake-bites. He complains, however, that all serum issued from this Central Research Institute, whether to the Government or local fund institutions or to private institutions or persons, is charged for at Rs.3 12 annas per tube, whereas formerly it was supplied free of charge to dispensaries maintained by local and municipal funds. The price fixed by the Government of India, he observes, makes the use of this valuable remedy almost prohibitive in dispensaries which are not favourably situated as regards funds. The United Provinces local government has advised the Inspector-General that if there are any dispensaries in localities where cases of snake-bite are frequent which stand in need of special assistance in this respect the Inspector-General should consider, in communication with the chairman of the district board, whether it would be advisable to increase the grant for European medicines.

Insanity and Asceticism.

In the interesting work of Major G. F. W. Ewen, I.M.S., on "Insanity in India" notice is taken of the connexion between some forms of insanity and the practices of ascetics. It is not only the effect upon the patient, however, which has to be considered in this connexion. One great obstacle to the work of neuropathic experts is the firmly rooted idea in the mind of the patient's friends that the affliction, according to the character of its manifestations, is either a subject for veneration or a punishment occasioned by mystic forces. Either the man has insulted a priest or defiled a temple, or he is a saint and greatly endowed in some way which gives him superiority to his fellows. One, Mahomed Bux, was so insane as to be almost incomprehensibly incoherent and so deficient in control that he once committed murder, yet he was regarded by the whole of Lahore, Mahomedan and Hindu alike, as a holy and powerful man who by much meditation had gained control of a "Jin" and could grant his applicants any favour. To him went rich merchants, graduates, and even native medical men who could discourse learnedly on the nature of this very disease but whose superstitions were still more powerful than their learning.

Sept. 30th.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At the quarterly meeting of the council of the above College on Oct. 15th the following diplomas were granted:—

Diploma of Member.—John Joseph Cameron, M.D. Toronto, Toronto University and London Hospital; and Charles Ogilvie Lillie, M.B., Ch.B. New Zealand, New Zealand University and Middlesex Hospital.

Licence in Dental Surgery.—Edgar Smith, Guy's Hospital; and Arthur Brookes Thomason, Victoria University, Manchester.

KING'S COLLEGE.—The council of King's College has made the following appointments: Dr. StClair Thomson as professor of laryngology in King's College Hospital Medical School, and Mr. H. Moore as assistant lecturer in physics.

UNIVERSITY OF CAMBRIDGE.—The Gedge prize has been awarded to E. Mellanby, B.A., Emmanuel College, for his essay on creatine and creatinine.—Dr. Liveing, late professor of chemistry, and the Master and Fellows of Caius College and of Sidney Sussex College, have presented valuable apparatus and chemicals to the University chemical laboratory.—The following degrees were conferred on Oct. 15th:—

M.D.—H. F. Horne, King's; and H. J. Fardon, Christ's.

The following have passed the Sanitary Science Examination:—

J. H. H. Baillie, Victoria E. M. Bennett, Catherine L. Boyd, Dora E. L. Bunting, J. S. Clark, J. C. Dunn, J. Glaister, C. A. Gourlay, A. H. Griffith, S. A. Tim. Henry, J. S. Higgins, W. C. Hossack, Elizabeth M. McVail, E. P. Minett, C. B. Moss-Blundell, K. K. Mukhopadhyay, A. Richmond, D. Stewart, J. L. Stewart, R. S. Turton, and Lilian E. Wilson.

—The Committee for the Study of Special Diseases is about to elect a qualified medical lady to the R. C. Brown scholarship in special pathology. The annual value of the scholarship is £150, in addition to laboratory expenses. The holder of the scholarship will be required to undertake clinical research in connexion with the bacteriology of certain chronic infections associated with rheumatoid arthritis. Application, giving an account of previous medical and laboratory experience, together with three references to former teachers, should be sent in not later than Oct. 28th. Candidates are requested not to send testimonials. For further particulars application should be made to Mr. T. S. P. Strangeways, Department of Medicine, Cambridge University.

FOREIGN UNIVERSITY INTELLIGENCE.—*Baltimore (College of Physicians and Surgeons):* Dr. C. W. G. Rohrer has been appointed Assistant Professor of Medicine and Therapeutics.—*Gratz:* Dr. Rudolf Polland has been recognised as *privat-docent* of Dermatology and Syphiligraphy.—*New Orleans (Tulane University):* Dr. J. B. Guthrie has been promoted to be Assistant Professor of Medicine and Therapeutics.—*Philadelphia (Women's Medical College of Pennsylvania):* Dr. H. C. Deaver has been appointed Professor of Surgery in succession to Dr. William L. Rodman, resigned.—*Vienna:* Dr. Josef Möller, Professor in the University of Gratz, has been appointed to the chair

of Pharmacognosis. Dr. Thomas v. Resck has been appointed Director of the Wieden Hospital.—*Würzburg:* Dr. Burckhardt, *privat-docent* of Surgery, has been granted the title of Extraordinary Professor.

WESTMINSTER HOSPITAL.—Entrance scholarships have been awarded at the Westminster Hospital Medical School as follows: R. C. C. Clay, Epsom scholarship, value 120 guineas; W. G. Shakespeare, first scholarship in Arts, value £60; D. M. Connan, natural science scholarship, value £60; J. W. Ebden, second scholarship in Arts, value £40; and J. Lloyd, second science scholarship, value £40.

GIFT OF A CONVALESCENT HOME.—Mr. G. P. Shepherd of Keymer, Sussex, has given a sum of £10,000 to build and to endow a convalescent home at Worthing for patients from the Surrey County Hospital, Guildford. A site for the building at the east end of the Parade, with its main frontage to the Brighton-road, has been purchased by public subscription at a cost of £650. There will be accommodation for six female and four male patients, and all the dormitories will open upon balconies overlooking the sea.

PRESENTATIONS TO A MEDICAL MAN.—Dr. A. E. Brindley, the newly appointed medical officer of health of the borough of Derby, has been the recipient of some presentations at Bury, Lancashire, on relinquishing his appointment in that town. The staff of the municipal cleansing department gave a tantalus spirit frame "as a mark of esteem and respect." At the request of the carters at the town's yard the Shire Horse Society's prize won by corporation horses at the recent Prestwich agricultural show was handed over to Dr. Brindley, and the chief officials of the corporation and the staff of the health department presented him with a dressing-case and a barometer. In addition he received handsome presents from the staff of the Florence Nightingale Hospital for Infectious Diseases and from the staff of the Ainsworth small-pox isolation hospital, of which he was medical superintendent.

BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY.—A party of French medical men, connected with the Société d'Hydrologie de Paris, who are interested in balneology and climatology, are paying a visit to England in connexion with the Voyages d'Etudes Médicales, and have been invited to attend this society's ordinary meeting on Oct. 29th. It has been arranged that the Fellows of the Society (who may bring guests, including ladies) shall dine on the same evening, at 7.30 P.M., with their French colleagues (some of whom will be accompanied by ladies), at the Great Central Hotel, Marylebone-road, each one paying for his own party. The charge for dinner will be 5s., exclusive of wine. It is thought that there will be a large attendance of Fellows. Notice of intention to dine should be sent to the London secretary, Dr. S. P. Sunderland, 11, Cavendish-place, London, W., the day before the meeting if possible.

ROYAL ACADEMY OF MEDICINE IN IRELAND.—At the annual general meeting of the Royal Academy of Medicine, held at the Royal College of Physicians on Oct. 9th, the following officers and councils were elected for the coming year:—President of the Academy: J. Magee Finny. General Secretary: James Craig. Secretary for Foreign Correspondence: Sir John Moore. Medical Section:—President: Walter G. Smith. Council: J. B. Coleman, H. C. Drury, T. P. C. Kirkpatrick, J. A. Matson, T. G. Moorhead, J. F. O'Carroll, G. Peacocke, F. C. Purser, E. J. Watson, and W. A. Winter. Surgical Section:—President: John Lentaigne, P.R.C.S. Council: C. A. Ball, Alexander Blaney, Sir A. Chance, W. S. Haughton, R. C. B. Maunsell, Seton Pringle, Sir H. Swanzy, E. H. Taylor, W. Taylor, and W. I. de C. Wheeler. Obstetrical Section:—President: E. H. Tweedy. Council: Gibbon FitzGibbon, M. J. Gibson, J. H. R. Glenn, A. N. Holmes, A. J. Horne, H. Jellett, F. W. Kidd, R. D. Purefoy, J. Spencer Sheill, and T. H. Wilson. Pathological Section:—President: A. R. Parsons. Council: A. H. Benson, H. C. Earl, L. G. Gunn, W. G. Harvey, H. C. Mooney, J. F. O'Carroll, A. C. O'Sullivan, R. J. Rowlette, J. A. Scott, and A. H. White. Section of Anatomy and Physiology:—President: T. H. Milroy, Council: A. F. Dixon, A. Fraser, H. M. Johnston, E. L'E. Ledwich, and E. P. McLoughlin. Section of State Medicine:—President: W. R. Dawson. Council: A. E. Boyd, T. Donnelly, T. P. C. Kirkpatrick, E. J. McWeeney, J. A. Matson, and W. A. Winter. Resolutions of condolence were passed in reference to the deaths of Sir John T. Banks, K.C.B., Sir Arthur V. Macan, and Dr. Conolly Norman, which occurred since the last annual meeting of the Academy.

THE LATE DR. EMILY E. EBERLE OF CLIFTON.—As a memorial to the late Dr. Emily Eberle a free bed bearing her name is to be placed at the Private Hospital for Women, Berkeley-square, Clifton.

DAMAGES FOR PTOMAINE POISONING.—At Abergavenny (Monmouthshire) police court last week a local grocer was awarded £30 damages against a Cardiff tradesman. The damages were claimed for nursing charges and loss of custom during illness alleged to have been caused by ptomaine poisoning brought about by eating bacon bought from defendant. Dr. T. E. Lloyd, who gave evidence, stated that he ordered the bacon to be destroyed. When he examined it he found that it had been cured with boric acid.

INFANTS' HEALTH EXHIBITION.—The Infants' Health Exhibition was formally opened by H.R.H. the Duchess of Albany at the Institute of Hygiene buildings in Devonshire-street, London, W., on Oct. 19th, and many members of the medical profession, as well as a number of ladies specially interested in the welfare of children, were present. Sir William Bennett, the President, after a few introductory remarks, said that the Incorporated Institute of Hygiene commenced its career with the object of promoting the study and practice of personal and domestic hygiene—that is to say, the hygiene of the family and the home. The preservation of life at all costs, no matter how valueless the life may seem to be, was a common instinct of civilised humanity, and, indeed, was an ethical necessity in the established methods of modern civilisation. At the same time it must be obvious to the meanest capacity that in preserving the lives of certain physically or mentally defective infants—in other words, in preserving the unfit—the community must be taking up a burden which, apart from its purely humanitarian aspect, had no corresponding advantage and might indeed be a danger, a fact appreciated to the full extent by highly civilised people in the distant past and by some barbarian races at the present time. In the struggle for supremacy, when the crisis came, as it must do soon or late, it was as sure as sure could be that the nation which was individually and collectively the most healthy physically and morally would survive, and since the child was father to the man it was a logical sequence that the nation which reared the healthiest children would have at its back the strongest men and women. H.R.H. the Duchess of Albany, in formally declaring the exhibition open, pulled a silk ribbon and drew the curtains back from the two entrances in the reception room leading to the Infants' Health Exhibition.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON).—The following Entrance Scholarships in Arts have been awarded for the session 1908–09: First Buxton Scholarship, Mr. Cecil Bluett (private instruction); Second Buxton Scholarship, Mr. Alma Percy Ford (Mercer's School).—A course of eight lectures on "The Circulation in Man" was commenced on Oct. 16th in the Physiological Theatre of the London Hospital Medical College and will be continued on Oct. 23rd and the six following Fridays at the same hour. They will be free to all students of the University of London. Dr. Martin Flack gave the first lecture and is the lecturer for Oct. 23rd. The next four lectures will be given by Dr. Thomas Lewis, and the last two by Dr. Leonard E. Hill. The syllabus is as follows:—Lecture I.: The histological structure of heart muscle; the distribution of ganglion cells and nerve fibres; the sino-auricular node; the auriculo-ventricular bundle and its connexions. II.: The fundamental properties of cardiac muscle; the coördination and movements of different parts of the heart. III.: A brief history of our knowledge of the venous pulse in animals and man; the anatomy of the jugular veins and apparatus employed in taking venous curves; general constitution of the venous pulse and the relation of venous records to other methods of examining the heart; the detailed analysis of the normal venous pulse. IV.: The clinical interpretation of venous pulse. V.: Heart-block. VI.: The causation of the

fits in heart-block in man (Adam-Stokes syndrome) and the relationship of the vagus to the fits. VII.: Methods of measuring the arterial pressure, the venous and the capillary pressures; the peripheral resistance, its seat and influence. VIII.: The filling of the heart, the influence of posture and muscular movement; back congestion; effect of plethora, hydræmia, and hæmorrhage.

UNITED KINGDOM POLICE SURGEONS' ASSOCIATION.—The annual meeting of this association was held recently at 6, Catherine-street, Strand, when the following officers were elected for 1908–09:—President: Mr. H. Nelson Hardy. Vice-Presidents: Sir H. D. Littlejohn (Edinburgh), Dr. H. W. Oulton (Dublin), and Mr. F. W. Lowndes (Liverpool). Treasurer: Mr. J. Paul Bush (Bristol). Honorary secretaries: Dr. W. H. Whitehouse (Birmingham) and Mr. W. Powell (Cheltenham). Council: Dr. Henry Barnes (Carlisle), Mr. J. M. Harper (Bath), Mr. W. J. Heslop (Manchester), Mr. E. K. Houchin (London), Dr. L. Maybury (Portsmouth), Mr. J. T. J. Morrison (Birmingham), Dr. T. F. Higgs (Dudley), Mr. H. W. Roberts (London), Mr. W. M. Roocroft (Wigan), Dr. C. Templeman (Dundee), Dr. T. Wallace (Cardiff), and Dr. J. F. Craig (Birmingham).

MIDLAND MEDICAL UNION: CHESTERFIELD BRANCH.—On the invitation of the Rev. E. F. Crosse, vicar of Chesterfield, the members of the Chesterfield branch of the above Medical Union attended service at the parish church on Oct. 18th (St. Luke's day). Amongst those who were present were Dr. G. Booth, Dr. J. G. Shea, Dr. D. M. Livingstone, Dr. A. Green, Dr. W. J. Symes, Mr. J. H. Booth, Mr. A. W. Shea, Mr. F. J. Waldmeier, Mr. M. L. Ford, Mr. R. Godwin Chase, and Mr. J. Buckley and the general secretary, Mr. G. S. O'Rorke, LL.D., of Nottingham. The mayor, Mr. Alderman Eastwood; the mayor-elect, Mr. Councillor Short; and the town clerk, Mr. J. Middleton, were also present. The lessons were read by Dr. G. S. O'Rorke (lay reader) and a sermon was preached by the vicar from the text St. Mark ii. 9 to a large congregation comprising over 2000 people.

UNIVERSITY OF OXFORD.—Scholarships in Natural Science are announced for competition as under: Dec. 1st, Balliol College, Christ Church, and Trinity College; Dec. 8th, University, Lincoln, and Magdalen Colleges; Dec. 15th, Jesus College; March 9th, 1909, Keble College; March 16th, 1909, Merton, Exeter, and New Colleges.—In the recent competitions for University entrance scholarships that at the London Hospital was awarded to H. Scott Wilson, Queen's College; that at St. George's Hospital to G. H. Varley, St. John's College; and that at St. Thomas's Hospital to H. C. Bazett, Wadham College.—The degree days in the present term are: Thursday, Oct. 22nd; Saturday, Nov. 7th, at 2.30 P.M.; Thursday, Nov. 26th at 10 A.M.; and Thursday, Dec. 17th, at 10 A.M.—The Examination in Preventive Medicine (D.P.H.) will commence on Tuesday, Nov. 17th, at 10 A.M. Names must be sent in not later than 10.30 A.M. on Tuesday, Oct. 27th. Forms of entry and all particulars may be obtained from the Assistant Registrar, Old Clarendon Building.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—A quarterly court of this society was held on Oct. 14th at 11, Chandos-street, Cavendish-square, Dr. G. F. Blandford, the President, being in the chair. 19 directors were present. The death of a member of the society was reported. Three new members were elected. It was decided to give to the annuitants of the charity a present at Christmas in addition to their usual grants, each widow to receive £10, each orphan £3, and each orphan on the Copeland fund £5; a sum of £523 was voted for this purpose. Since the last court a donation of £330 had been received from Mrs. Cullingworth, whose husband, the late Dr. C. J. Cullingworth, had been a member of the society. A cordial vote of thanks was passed and a copy of the resolution was forwarded to Mrs. Cullingworth. The directors of the society cannot too strongly urge, especially on the younger members of the profession, the advantages of joining the society, the invested funds of which now amount to £100,000. Membership is open to any registered medical practitioner who at the time of his election is residing within a 20-mile radius of Charing Cross. The subscription is £2 2s. per annum, payable in one sum or in two half-yearly sums of £1 1s. each. There are special terms for life membership. Full particulars and application form for membership may be obtained from the Secretary, at the offices of the society, 11, Chandos-street, Cavendish-square, London, W.

Dr. W. A. Dingle has been unanimously chosen Mayor for the Borough of Finsbury.

PRESENTATION TO PROFESSOR T. G. BRODIE.—At a meeting of the Physiological Society held at Guy's Hospital on Oct. 17th a testimonial was presented to Professor T. G. Brodie, F.R.S., in recognition of his services to physiology and experimental pathology, on the eve of his departure to Toronto where he has received the appointment of professor of physiology. The subscribers to the fund included not only members of the Physiological Society but also numerous old friends and colleagues at King's College, St. Thomas's Hospital, the Embankment Laboratories, the London School of Medicine for Women, and the Royal Veterinary College, in which places Professor Brodie holds, or has held, appointments. The sum subscribed amounted on Oct. 17th to nearly £80, and Professor W. D. Halliburton, who has been acting as the honorary treasurer of the fund, had the pleasure of handing to Professor Brodie a cheque for this amount, less a small sum which was reserved for the purchase of a more permanent memento of the occasion; it is intended that this memento shall take the form of a piece of plate and shall bear a suitable inscription. We understand that the fund is not yet finally closed and that Professor Halliburton (King's College, London, W.C.) will be glad to receive donations from any who may not have received copies of the circular which has been sent out and who may desire to participate in this token of regard for Professor Brodie.

MANCHESTER INFIRMARY.—The last days of the old Manchester Infirmary have been marked by a gathering of old residents, possibly unique in hospital history. Out of the number of just over 400 medical men still alive who have held resident appointments there no fewer than 260 were present at the gathering held on Thursday and Friday, Oct. 15th and 16th, to bid farewell to their old hospital. On Thursday very successful photographs were taken under the walls of the old building, first of the 214 old residents present and then of those men who had been residents under the old *régime* up to 1878. Later in the afternoon tea was provided in the hospital by the honorary staff and the wards were thronged with former house physicians and house surgeons anxious to see the old place once more. A dinner was held in the evening at the Midland Hotel and here great enthusiasm was shown. Dr. S. Buckley (resident 1869-72) was President and Mr. F. Melland (1841-42), Dr. S. Nesfield (1855), Mr. W. O. Jones (1861-64) and Dr. Anderson (1862-63) acted as Vice-presidents. The tables were arranged in order of seniority, each being marked with a card giving the years of the men who occupied it. In several cases all the men of a year were present and in others only those were absent who were abroad. Besides the loyal toasts and that of "The President," proposed by Dr. H. A. Lediard of Carlisle, the toasts of the evening were "The Memory of the Old Manchester Royal Infirmary" (Dr. John Anderson of London and Dr. Peter Thompson of King's College, London); and "The Prosperity of the New Manchester Royal Infirmary" (Dr. A. E. Finney of Wilmslow and Mr. William Thorburn of Manchester). The excitement of such a large number of reunions of friends did not allow the speakers a good hearing. On the Thursday and Friday the new infirmary was open for inspection, the old residents being taken round in eight parties under the guidance of members of the honorary staff.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The winter session in the College School commenced on Oct. 15th. The prizes of the previous session were distributed by the President, Mr. J. Lentaigne, as follows:—Barker Anatomical Prize: £31 10s., G. C. Sneyd; special prize: £26 5s., Miss I. M. Clarke. Carmichael Scholarship: £15, J. S. Pegum. Mayne Scholarship: £8, T. C. Boyd. Gold Medal in Operative Surgery: R. Adams; silver medals: C. Greer and G. C. Sneyd. Stoney Memorial Gold Medal in Anatomy: H. G. P. Armitage. Descriptive Anatomy, junior: J. Pendiville, first prize (£2) and medal;

A. G. Mosbery, second prize (£1) and certificate. Senior: J. T. Duncan, first prize (£2) and medal; P. I. Wigoder, second prize (£1) and certificate. Practical Anatomy, first year: V. J. White, first prize (£2) and medal; I. M. Swanepoel, second prize (£1) and certificate. Second year: T. M. Thomson, first prize (£2) and medal; F. W. Warren, second prize (£1) and certificate. Practice of Medicine: R. Adams, first prize (£2) and medal; J. Menton and Miss C. F. Williamson (equal), second prize (£1) and certificate. Surgery: R. Adams, first prize (£2) and medal; G. C. Sneyd, second prize (£1) and certificate. Midwifery: J. Menton, first prize (£2) and medal; Miss I. M. Clarke and Miss C. F. Williamson (equal), second prize (£1) and certificate. Physiology: J. T. Duncan, first prize (£2) and medal; F. W. Warren, second prize (£1) and certificate. Chemistry: T. P. Roberts, first prize (£2) and medal; M. J. Hillery, second prize (£1) and certificate. Pathology: J. S. Pegum, first prize (£2) and medal; H. R. Tighe, second prize (£1) and certificate. Physics: M. J. Hillery, first prize (£2) and medal; T. D. Condell, second prize (£1) and certificate. Practical histology: J. T. Duncan, first prize (£2) and medal; L. W. Roberts, second prize (£1) and certificate. Practical chemistry: B. Kelly, first prize (£2) and medal; W. N. Harrison, second prize (£1) and certificate. Public health and forensic medicine: F. W. Warren, first prize (£2) and medal; H. R. Tighe, second prize (£1) and certificate. Materia medica: J. S. Pegum, first prize (£2) and medal; Miss N. Williams, second prize (£1) and certificate. Biology: M. J. Hillery, first prize (£2) and medal; G. E. Pepper, second prize (£1) and certificate.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Vital Statistics of Scotland.

A SUPPLEMENT to the annual report of the Local Government Board for Scotland containing statistics of notifications of infectious disease and of mortality has been issued as a bluebook. The number of cases of infectious disease notified under the Infectious Disease (Notification) Act, 1889, was 26,328 and of these cases 15,997 were treated in hospital by the local authorities. These figures relate only to diseases in respect of which notification is compulsory under the Act and they do not include diseases to which the Act has been voluntarily extended by the local authorities. Statistics with regard to the birth-rate and death-rate are also given. In 1907 the birth-rate in the landward parts of Scotland was 26·2 and in the burghal 27·5 per 1000 of their respective estimated populations. The death-rate in the landward districts was 14·4 and in the burghal 16·6 per 1000 of their respective estimated populations. The death-rate of infants under one year old was 91·0 in the landward parts and 117·9 per 1000 born in the burghal.

The Children Bill.

The Children Bill has received a third reading in the House of Commons and is now before the House of Lords. The modification of the clauses directed against juvenile smoking is considered likely to smoothen its further progress.

White Phosphorus Matches Prohibition Bill.

The House of Commons assented to the second reading of the White Phosphorus Matches Prohibition Bill without discussion on Oct. 19th. Its object is to prohibit the manufacture, sale, and importation of matches made with white phosphorus with a view to the protection from necrosis of persons employed in the manufacture of matches.

Tuberculosis Prevention (Ireland) Bill.

A Standing Committee of the House of Commons began consideration of the Tuberculosis Prevention (Ireland) Bill on Wednesday, Oct. 21st. The progress was slow and only a couple of amendments to Clause I. were discussed before the committee rose. No alteration was made in the text of the clause as a result of the day's deliberations. Clause I. imposes a duty on medical practitioners of notifying cases of tuberculosis to the medical officer of health in a district. This notification is to be made under regulation of the Local Government Board. Mr. T. W. RUSSELL, on behalf of the Irish Office, made an important statement on the principles which would guide the Board in issuing the regulations. He stated that the principal object of the Board would be to make it compulsory to notify such cases only as could be helped. Only cases of open tuberculosis of the lung would at first be notified and then only when the patients were living under conditions dangerous to other people. The Local Government Board would have no objections to consult a committee of medical men in regard to this matter. Some opposition was raised to the compulsory character of the notification clause during the discussions. The committee intended to resume consideration of the Bill next week.

HOUSE OF LORDS.

TUESDAY, OCT. 20TH.

Nurses' Registration Bill.

On the motion of Lord AMPTHILL the Nurses' Registration Bill was re-committed.

On Clause 2 Viscount WOLVERHAMPTON moved an amendment to provide that the name of the new body charged with the registration of nurses should be "The General Council for the Registration of Nurses in the United Kingdom."

The amendment was agreed to.

Clause 4 deals with the constitution and appointment of the Council.

Lord AMPTHILL moved an amendment to raise the number of members from 15 to 16. He explained that he did this for the purpose of adding a representative nurse from Ireland. The intention was also to bring Ireland immediately within the scope of the Bill instead of delaying its inclusion.

Lord ASHBOURNE commented on the desirability of giving more than one representative nurse each to Scotland and Ireland.

Viscount WOLVERHAMPTON replied that the number of the Council should be kept low in the interests of efficiency.

The amendment was agreed to, as well as a consequential one giving a seat on the Council to a nurse to be "elected by the nurses registered in the General Register whose registered address is in Ireland."

One of the subsections of Clause 4 provides for the presence on the Council of "three registered medical practitioners to be appointed by the British Medical Association, one to be a physician, one a surgeon, and one a general practitioner."

On the motion of Lord ASHBOURNE it was amended so as to read as follows:—

"Three registered medical practitioners to be appointed by the British Medical Association, one to be resident in England, one to be resident in Ireland, and one to be resident in Scotland."

Clause 4, after some further slight amendment, was agreed to.

A number of minor amendments, many of a drafting nature, were introduced into the other clauses.

Clause 23 imposed a delay on the application of the measure to Ireland until such time as it should be extended by an Order in Council, but following upon the amendments giving representation to Ireland it was agreed to delete this provision from the Bill.

Lord AMPTHILL moved a new clause to the effect that "this Act shall not be construed to affect or apply to the gratuitous nursing of the sick by friends or members of a family, and also it shall not apply to any person attending the sick for hire, who does not in any way assume to be a registered nurse under this Act." He stated that he did not personally think that the clause was needed, as gratuitous nursing of the sick was in no way affected by the Bill. However, a great number of the people concerned, particularly members of the medical profession, were anxious to see an actual safeguard in the text of the Bill.

The Earl of MAYO suggested that a clause might be framed in the following terms:—"This Act shall not apply to or affect the nursing of the sick by any person not registered under this Act, who does not in any way assume to be a registered nurse."

Viscount WOLVERHAMPTON did not think the clause was necessary, but the Government would give the matter careful consideration.

The Marquis of LANSDOWNE thought that the words of the proposed clause would be misleading. If they put them in the Bill they would suggest that there was something in the Bill which it did not contain.

Lord ASHBOURNE considered that public opinion would like to see some words actually introduced into the Bill to make it abundantly plain that nurses who were not certificated nurses should be absolutely free to follow their calling.

The proposed clause was rejected without a division.

Lord AMPTHILL said that another clause stood on the notice paper in his name, but he did not press it as he did not think it was necessary, nor would it really add anything to the Bill. It ran thus: "Nothing contained in this Act shall be considered as conferring any authority to practise medicine or to undertake the treatment or cure of disease."

This proposal was not pressed.

The Bill passed through Committee.

HOUSE OF COMMONS.

WEDNESDAY, OCT. 14TH.

The Dairies, Cowsheds, and Milkshops (Ireland) Order.

Mr. LONSDALE asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that opposition had been shown in the rural parts of Ireland to the general Order of the Local Government Board for Ireland with respect to dairies, cowsheds, and milkshops; that this feeling was largely due to the discrimination made between farmers and cowkeepers who sold milk to creameries for manufacture into butter and those who made their own milk into butter; and whether it was intended to recall this Order and apply the regulations equally to all classes of dairy farmers in Ireland.—Mr. BIRRELL replied: The order in question applies equally to all persons engaged in the public supply of milk. Its object is to prevent the spread of disease by means of the milk-supply, and therefore it deals only with persons engaged in such supply as contemplated by the Act under which the Order was made. I am aware that some opposition to the Order has been shown, but its provisions are very necessary in the interests of public health and it is not intended to withdraw it.

The Application of the Nurses' Registration Bill to Ireland.

Mr. LONSDALE asked the Chief Secretary to the Lord Lieutenant of Ireland whether he had received representations that the proposal to postpone the application to Ireland of the provisions of the Nurses' Registration Bill would inflict injury upon Irish nurses and training institutions in Ireland; and whether, in view of these considerations, he would move the Irish Local Government Board to make an effort to surmount the administrative obstacles which had led them to oppose the application of this measure to Ireland.—Mr. BIRRELL answered: The Government has placed on the paper amendments providing for the immediate application to Ireland of the Nurses' Registration Bill.

The Suppression of the Use of Opium in China.

Mr. REES asked the Secretary of State for Foreign Affairs whether the edict of the Chinese Government banning the introduction into, and manufacture and sale within, the empire of morphine and hypodermic

appliances indicated that the suppression of the use of opium implied recourse to other drugs in place thereof; and whether the Foreign Office was in possession of any information to show that this was the case.—Mr. J. A. PEASE (who answered on behalf of Sir EDWARD GREY) said: The prohibition of the general importation of morphine into China except on certain conditions, was agreed to by His Majesty's Government in Article XI. of the Commercial Treaty between China and Great Britain of 1902. The stipulation contained in that Article, that the prohibition should only come into force on all other Treaty Powers agreeing to its conditions, has, however, only recently been fulfilled. The edict has, therefore, no direct connexion with the measures adopted for the suppression of the use of opium. Whether the suppression of the use of opium in China, if successfully accomplished, would have to any extent the effect indicated in the question is a matter on which my right honourable friend cannot express an opinion. It is not implied in the edict.

The Purity of Milk-supplies.

Sir FRANCIS CHANNING asked the President of the Local Government Board whether he had now completed the consultations with the Board of Agriculture as to dealing with tuberculous cows, and was now in a position either to bring in the Milk Bill at an early date or to take prompt and effective administrative action to secure greater purity in the supply of milk to the metropolis and the great centres of population.—Mr. BURNS (by written answer) replied: The matter is receiving attention, but I am not at present in a position to take action of the kind referred to in the question.

Sir FRANCIS CHANNING also asked the right honourable gentleman whether the report of the Royal Commission on Tuberculosis would be immediately issued; and if not, whether, having regard to the constant demands of local authorities for further powers to deal with this disease, whether as affecting the public health or cattle, and to the questions constantly raised by agriculturists, butchers, and others as to the losses caused by the persistence of this disease, he would press the Commission to report promptly and undertake to deal with the whole question of the extirpation of this scourge by national and adequate machinery at the earliest moment.—Mr. BURNS replied: I have made inquiry and am informed that no definite date can be fixed for the issue of the final report of the Royal Commission, but I understand that it is now preparing another interim report dealing with the infectivity of milk from tuberculous cows which will probably be presented next month. I will bring under the notice of the Commission the desire expressed in the latter part of the question with regard to its report.

MONDAY, OCT. 19TH.

Vaccination Cases in Cirencester.

Mr. LUPTON asked the President of the Local Government Board whether a medical officer, on behalf of the Local Government Board, had inquired into cases of children vaccinated in Cirencester, and if he ascertained that the result of the vaccination in the case of three or more children had been to cause terrible sores, eating the flesh to the bone; and if, in consequence of these and other similar cases, the quality of the lymph supplied by the Local Government Board had been changed.—Mr. BURNS replied: Three instances at Cirencester which called for inquiry were investigated by one of the medical inspectors of the Local Government Board. In two of them the vaccination places were long in healing, but the symptoms were not of a serious character. A large number of children were vaccinated from the lymphs used in these cases respectively without any such symptoms and the evidence indicates that in these two cases secondary contamination of the vaccination places occurred. In the third case there was deep ulceration at the site of vaccination. This, however, did not begin to show itself till subsequently to the ninth day after vaccination, and no adverse report has reached the Local Government Board in respect of any of the thousand or more children vaccinated from the same lymph as that used in this instance, although reports are required in each case. The home of the child was insanitary and overcrowded, and it appears to be clear that the vaccination places were secondarily infected by septic material. I am not aware of any need for changing the quality of lymph used by the Board.

Mr. ESSEX: Is the right honourable gentleman satisfied that these cases developed unsatisfactorily owing to the unsatisfactory conditions in which the children were?

Mr. BURNS: Our officers report to us that these symptoms were developed by uncleanliness.

The Destruction of Tuberculous Carcasses.

In answer to Mr. ABEL SMITH, who asked whether the Government was prepared to adopt the recommendations of the Select Committee on Tuberculosis as to compensation for carcasses condemned as tuberculous, Mr. BURNS said: Legislation would be necessary to give effect to that suggestion and I am not in a position to promise that such legislation will be proposed by the Government.

TUESDAY, OCT. 20TH.

The Medical Relief of the Poor.

Mr. SUMMERBELL asked the President of the Local Government Board whether he would state the number of cases in the coroners' returns of starvation cases, respectively, connected with Shoreditch, Holborn, and the whole of London; whether he had taken any, and, if so, what, steps to reduce the numbers in future; and whether he would suggest to the guardians of those unions that they should make it known to the poor that they were willing to give necessary relief, and especially medical relief, to the poor who needed it, in accordance with 43 Eliz., c. 2, s. 1, and 4 and 5 Will. 4, c. 76, so that the poor might apply before they became totally destitute.—Mr. BURNS replied: The latest return of the number of deaths upon which a coroner's jury returned a verdict of starvation or death accelerated by privation shows that in the year 1907 there were 46 such cases in the whole of London, of which eight were connected with Shoreditch and seven with Holborn. There appears to be no reason to suppose that the poor were unaware of the facilities for obtaining medical or other relief. In many of the cases mentioned in the return relief was applied for and given, but the application was made at too late a stage. I will give consideration to the matter, but it is difficult to see what effective action can be taken in respect of persons who are unwilling to apply for relief and whose cases are in no way brought under the notice of the guardians or their officers.

The Disposal of Sewage.

Mr. CLOUGH asked the President of the Local Government Board whether any further reports would be issued by the Royal Commission on the Treatment and Disposal of Sewage; and, if so, how many, and when did he expect to receive the final report; and whether he proposed to introduce legislation for the regulation of trade effluents into public sewers before he received the final report of this Commission.—Mr. BURNS answered: I understand that the Royal Commission proposes to issue a report in the course of the next three months on the disposal of distillery refuse and that in its final report it will deal with the disposal of other trade effluents when not mixed with sewage. The date of the issue of the final report cannot at present be given, but I do not think it will be necessary to await it before proposing legislation on the subject referred to in the question.

Trypanosomiasis and Syphilis in Uganda.

Mr. REES asked the Under Secretary of State for the Colonies how much of the grant in aid of £85,000 from the Imperial Exchequer to Uganda Protectorate in 1907–08 was expended on preventive measures taken against the spread of trypanosomiasis and syphilis; and how much of the like grant of £25,000 to Nyassaland was expended in preventing the spread of the former disease towards the latter Protectorate.—Colonel SEELY (in a written reply) wrote: A sum of about £11,000 was provided in the Uganda estimates for 1907–08 for the purpose of combating trypanosomiasis. An expert was sent out during the same year to report on the question of syphilis. His report has now been received and considered and a sum of £2000 has been inserted in the estimates for the current year for the purpose of providing better and more systematic medical treatment for the natives who are suffering from the disease. With regard to Nyassaland, efforts were directed during 1907–08 to ascertaining the distribution of trypanosomiasis in the countries bordering on the Protectorate and of the various kinds of tsetse fly within the Protectorate. This information appears to be an essential preliminary to any proper scheme of prevention.

WEDNESDAY, OCT. 21ST.

The Inmates of Broadmoor Asylum.

Mr. MARKHAM asked the Secretary of State for the Home Department whether his attention had been directed to a speech of one of His Majesty's judges alleging that many murderers were confined in Broadmoor Asylum though perfectly sane; whether he would say whether the decision of the doctor of this asylum as to whether a patient was insane or not was final; and whether no examination either by a medical board or independent medical man was permitted.—Mr. GLADSTONE replied: I have seen a report of the learned judge's remarks and I think that the honourable Member has somewhat misapprehended their purport; but I may say in reply to his question that there are in Broadmoor persons guilty of murder who could not at the present moment be held to be insane, but who must be detained in Broadmoor in pursuance of the order of the court so long as there is a serious risk that, if set at liberty, they would relapse into the condition in which they committed the crime. In judging of the mental condition of patients I rely on the advice of the medical authorities who see them daily and who have exceptional experience of similar cases, and I should not be assisted by calling in other medical men who, however eminent, could not have the same opportunities of forming an equally trustworthy opinion. In any case, the present mental condition is by no means the only determining factor in deciding whether it is safe to release a man who in a state of insanity has committed a grave crime and who, if at large, might again become dangerous.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent Garden, London, W.C.

Tuberculosis in Infancy and Childhood, its Pathology, Prevention, and Treatment. By Various Writers. Edited by T. N. Kelynack, M.D., M.R.C.P. Lond., Hon. Physician to the Infants' Hospital, Westminster. Price 12s. 6d. net.

A Manual of Surgery. For Students and Practitioners. By William Rose, M.B., B.S. Lond., F.R.C.S., Emeritus Professor of Surgery and Member of Council, King's College, London, and formerly Senior Surgeon to King's College Hospital, &c.; and Albert Carless, M.S. Lond., F.R.C.S., Professor of Surgery in King's College, and Surgeon to King's College Hospital, London, Examiner in Surgery to the University of London and to the Victoria University of Manchester, &c. Seventh edition. Price 21s. net.

CHURCHILL, J. AND A., 7, Great Marlborough-street, London, W.

A Dictionary of Medical Treatment. For Students and Junior Practitioners. By Arthur Latham, M.A., M.D. Oxon., M.A. Cantab., F.R.C.P. Lond., Physician and Lecturer on Medicine at St. George's Hospital; Senior Assistant Physician to the Brompton Hospital for Consumption and Diseases of the Chest. Price 6s. 6d. net.

A Manual of Bacteriology, Clinical and Applied. By R. Tanner Hewlett, M.D., F.R.C.P., D.P.H. Lond., Professor of General Pathology and Bacteriology, King's College, London. Third edition. Price 10s. 6d. net.

CONSTABLE, ARCHIBALD AND CO., LIMITED, London.

From an Easy Chair. By Sir Ray Lankester, K.C.B., F.R.S. Price 1s. net.

KEGAN PAUL, TRENCH, TRÜBNER, AND CO., LIMITED, Dryden House, Gerrard-street, London, W.

A Text-book of Diseases of the Ear. By Macleod Yearsley, F.R.C.S., Senior Surgeon to the Royal Ear Hospital; Medical Inspector to London County Council Deaf Schools; Lecturer on Anatomy and Physiology to the Training College for Teachers of the Deaf, Ealing. Price 18s. net.

Tutonish. An International Union Language, under a Liberal Anglo-Saxon Leadership. By Elias Molee, Ph.D. Price 1s. net.

LONGMANS, GREEN, AND CO., 39, Paternoster-row, London, E.C.

Quain's Elements of Anatomy. Editors: Edward Albert Schäfer, LL.D., Sc.D., F.R.S.; Johnson Symington, M.D., F.R.S.; and Thomas Hastie Bryce, M.A., M.D. In Four Volumes. Vol. III. Neurology. By E. A. Schäfer and J. Symington. Part I. Containing the General Structure of the Nervous System and the Structure of the Brain and Spinal Cord. Eleventh edition. Price 15s. net.

The Origin of Vertebrates. By Walter Holbrook Gaskell, M.A., M.D. (Cantab.), LL.D. (Edin. and McGill Univ.), F.R.S., Fellow of Trinity Hall and University Lecturer in Physiology, Cambridge. Price 21s. net.

MACLEHOSE, JAMES, AND SONS, Glasgow.

A Practical Course of General Physiology. For Medical Students. By D. Noël Paton, M.D., F.R.C.P. Ed., Professor of Physiology, University of Glasgow; and G. Herbert Clark, M.B., D.P.H., Muirhead Demonstrator of Physiology, University of Glasgow. Price 1s. net.

MARLBOROUGH, E. AND CO., 51, Old Bailey, London, E.C.

Hindustani Self-Taught. With English Phonetic Pronunciation. By Captain C. A. Thimm. Third edition. Hindustani Text Revised by J. F. Blumhardt, M.A., M.R.A.S. Price, wrapper, 2s.; cloth, 2s. 6d.

MURRAY, JOHN, Albemarle-street, London, W.

Therapeutics of the Circulation. Eight Lectures delivered in the Spring of 1905 in the Physiological Laboratory of the University of London. By Sir Lauder Brunton, Bart., M.D., D.Sc., LL.D. Edin., LL.D. Aberd., F.R.C.P., F.R.S., Consulting Physician to St. Bartholomew's Hospital. (Published under the Auspices of the University of London.) Price 7s. 6d. net.

ROUTLEDGE, GEORGE AND SONS, LIMITED, London. (DUTTON, E. P., AND CO., New York.)

The Case for the Goat. With the Practical Experience of Twenty-five Experts. By "Home Counties." With Introductions by the Duchess of Hamilton and Brandon, President of the British Goat Society, and Mr. H. Rider Haggard, and Many Photographs of Prize Goats and Stables. Second edition. Price 3s. 6d.

TAYLOR AND FRANCIS, Red Lion-court, Fleet-street, London.

Calendar of the Royal College of Surgeons of England. August 1st 1908. Price 1s.

TAYLOR, J. AND H., 54, Tenby-street North, Birmingham.

Geometrical Optics. By Val. H. Mackinney and Harry L. Taylor. Price not stated.

THIN, JAMES, South Bridge, Edinburgh.

Pharmacopœia of the Royal Infirmary, Edinburgh. Also Formulæ in Use in the Royal Hospital for Sick Children. Revised and Enlarged by Thomas Alexander, Chemist to the Royal Infirmary. Third edition. Price 2s. 6d. net.

UNIVERSITY CORRESPONDENCE COLLEGE, Burlington House, Cambridge. (UNIVERSITY TUTORIAL PRESS, LIMITED, 157, Drury-lane, London, W.C.)

The London University Guide, 1909. Containing the Regulations for Examinations to be held in 1909 and 1910. Price not stated.

UNIVERSITY OF LONDON, South Kensington, S.W.

University of London. The Calendar for the Year 1908–1909. Price 5s. net. Post free.

Regulations and Courses for Internal Students. September, 1908. Price 1s. net. Postage 5d.

Regulations for External Students. September, 1908. Price 1s. net. Postage 4d.

UNIVERSITY PRESS, Aberdeen.

University of Aberdeen. Proceedings of the Anatomical and Anthropological Society, 1906–1908. Price not stated.

UNIVERSITY TUTORIAL PRESS, Burlington House, Cambridge, and 32, Red Lion-square, Holborn, London, W.C.

University Correspondence College. The Calendar, 1908–1909. Price 1s.

UNWIN, T. FISHER, 1, Adelphi-terrace, London, W.C.

Pain, its Causation and Diagnostic Significance in Internal Diseases. By Dr. Rudolph Schmidt, Assistant in the Clinic of Hofrat von Neusser, Vienna. Translated and edited by Karl M. Vogel, M.D., Instructor in Pathology, College of Physicians and Surgeons, Columbia University, and Hans Zinsser, A.M., M.D., Instructor in Bacteriology, College of Physicians and Surgeons, Columbia University. Price 12s. 6d. net.

WILSON, EFFINGHAM, 54, Threadneedle-street, London, E.C.

Time Limit—Monopoly Value and Compensation. A Criticism of the Licensing Bill, 1908. By Michael Cababé of the Inner Temple, Barrister-at-Law. Price 1s. net.

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)

A Manual of Natural Therapy. By Thomas D. Luke, M.D., F.R.C.S. Edin., Lecturer at the University of Edinburgh, formerly Physician at Smedley's Hydropathic and Sanatorium, Matlock. Price 7s. 6d. net.

YEAR-BOOK PUBLISHERS, 40, Dearborn-street, Chicago. (GILLIES, G. AND CO., 23, Gibson-street, Hillhead, Glasgow.)

The Practical Medicine Series. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Series 1908. Under the General Editorial Charge of Gustavus P. Head, M.D. Vol. IV. Gynecology. Edited by Emilius C. Dudley, A.M., M.D., Chicago, and C. von Bachellé, M.S., M.D., Chicago. Price 5s. net. Vol. V. Obstetrics. Edited by Joseph B. de Lee, A.M., M.D., with the collaboration of Herbert M. Stowe, M.D. Price 5s. net. Vol. VI. General Medicine. Edited by Frank Billings, M.S., M.D., and J. H. Salisbury, M.D. Price 6s. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

HORROCKS, O., L.R.C.P. Edin., F.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Chatteris District of the county of Cambridge.

HOWARD, RUSSELL, M.S. Lond., F.R.C.S., has been appointed Assistant Surgeon to the London Hospital.

JONES, JOHN ELLINGTON, L.R.C.P. Lond., M.R.C.S., L.S.A., has been appointed Honorary Skiagraphist to the Bristol General Hospital.

OGG, T. A. W., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Rothes District of the county of Elgin.

PAINE, ALEXANDER, M.D., B.S. Lond., D.P.H., has been appointed Director of the Cancer Research and Pathological Department at the Cancer Hospital, Fulham-road, S.W.

ROBB, W., M.B., M.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Higham Ferrers District of the county of Northampton.

SUMNER, BENJAMIN, M.D., M.Ch.R.U.I., M.R.C.S., L.R.C.P. Lond., has been appointed Honorary Gynæcologist to the Bootle Hospital.

TITTERTON, JOHN TARRATT, M.B., C.M. Edin., has been appointed Medical Officer for the No. 5 District by the St. Germans (Cornwall) Board of Guardians.

WATT, P. C., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Gatehouse District of the county of Kirkcudbright.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ASHTON-UNDER-LYNE DISTRICT INFIRMARY.—Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, washing, &c.

BIRMINGHAM, PARISH OF.—District Medical Officer. Salary £350 per annum.

BLACKPOOL EDUCATION COMMITTEE.—School Medical Officer (female). Salary £200 per annum.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—House Physician, unmarried. Salary £70 per annum, with apartments, board, and laundry.

BRISTOL EYE HOSPITAL.—House Surgeon. Salary £70 per annum, with board and residence.

BRISTOL GENERAL HOSPITAL.—Casualty House Surgeon. Salary £80 per annum, with board, residence, &c.

BUXTON, DERBYSHIRE, DEVONSHIRE HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with apartments, board, and laundry.

CAMBRIDGESHIRE, &C., LUNATIC ASYLUM, Fulbourn, near Cambridge.—Second Assistant Medical Officer, unmarried. Salary £120 per annum, with board, lodging, and attendance.

CANCER HOSPITAL, Fulham-road, London, S.W.—Assistant Pathologist. Salary £250 per annum. Also Medical Registrar. Salary £100 per annum.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary at rate of £50 per annum, with board and residence.

CHELSEA INFIRMARY, Cale-street, S.W.—Second Assistant Medical Officer. Salary £100 per annum, with board, washing, apartments, &c.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—House Physician for six months. Salary at rate of £50 per annum, with board, washing, and residence.

COLCHESTER, BOROUGH OF.—Assistant Medical Officer of Health and School Medical Officer (female). Salary £200 per annum.

DERBY EDUCATION COMMITTEE.—School Medical Officer. Salary £250 per annum.

DREADNOUGHT HOSPITAL, Greenwich.—Assistant Physician. Also Dental Surgeon.

DURHAM COUNTY HOSPITAL.—House Surgeon. Salary £120 per annum, with board and lodging.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—House Surgeon for six months. Salary £25, with board, residence, and laundry. Also Assistant Physician. Also Second Medical Officer for six months. Salary at rate of £40 per annum, with luncheon and tea.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, London, S.E.—House Physician for nine months. Salary at rate of £60 per annum, with board, residence, and washing.

FINSBURY DISPENSARY, Brewer-street, Goswell-road, E.C.—Resident Medical Officer. Salary £140 per annum, with residence, attendance, coals, and gas.

GENERAL INFIRMARY AT GLOUCESTER AND THE GLOUCESTERSHIRE EYE INSTITUTION.—Physician.

GLOUCESTER COUNTY ASYLUMS.—Junior Assistant Medical Officer. Salary £150 per annum, rising to £180, with board, lodging, and washing.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HOLLOWAY SANATORIUM HOSPITAL FOR THE INSANE, Virginia Water, Surrey.—Junior Assistant Medical Officer (female). Salary £150 per annum, rising to £200, with board, lodging, laundry, attendance, &c.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Salary £25. Also Assistant Resident Medical Officer. Salary £100 per annum, with board and residence

HUDDERSFIELD INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board, residence, and washing.

IPSWICH, EAST SUFFOLK AND IPSWICH HOSPITAL.—House Surgeons for six months. Salary at rate of £65 per annum.

ISLE OF MAN ASYLUM.—Assistant Medical Officer. Salary £150 per annum, with board, quarters, and washing.

LANCASHIRE EDUCATION COMMITTEE.—Two School Medical Inspectors. Salaries £250 per annum, increasing to £400, with reasonable expenses.

LANCASTER, ROYAL LANCASTER INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with residence, board, attendance, and washing.

LEEDS PUBLIC DISPENSARY.—Junior Resident Medical Officer. Salary £100 per annum, with board and lodging.

LIVERPOOL EDUCATION COMMITTEE.—Two School Medical Officers. Salary £250 per annum.

LONDON COUNTY ASYLUM, Banstead, Sutton, Surrey.—Junior Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, and washing.

LUTON, BOROUGH OF.—Medical Officer of Health. Salary £400 per annum.

MARGATE, ROYAL SEA BATHING HOSPITAL.—Resident Surgeon. Salary at rate of £80 and £120 per annum, with board and residence.

MENSTON, NEAR LEEDS, WEST RIDING ASYLUM.—Fourth Assistant Medical Officer. Salary £150 per annum, with board and apartments.

METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL, Grafton-street, Fitzroy-square, W.—Two Anæsthetists.

MIDDLESEX HOSPITAL, W.—Second Assistant in the Bacteriological and Clinical Laboratories. Salary £100 per annum.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Senior House Surgeon. Salary at rate of £100 per annum, with board, attendance, and washing.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Surgeon Laryngologist.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Third Resident Medical Officer. Salary £60 per annum, with board, residence, and laundry.

NORFOLK EDUCATION COMMITTEE.—Two Assistant Medical Officers. Salary £250 per annum and necessary travelling expenses.

PAPA WESTRAY PARISH COUNCIL, Orkney.—Public Vaccinator. Salary £90 per annum, with fees and house.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Resident Medical Officer for Out-patients' Department for four months. Salary at rate of £60 per annum, with board, residence, and washing.

ROYAL DENTAL HOSPITAL OF LONDON, Leicester-square.—Assistant Dental Surgeon. Also Joint House Anæsthetist. Salary £30 per annum.

ROYAL NAVY, MEDICAL DEPARTMENT.—Fifteen Commissions.

ST. BARTHOLOMEW'S HOSPITAL.—Assistant Aural Surgeon.

ST. GEORGE'S UNION INFIRMARY, Fulham-road, West Brompton, S.W.—Second Assistant Medical Officer. Salary £120 per annum, with board, residence, and washing.

SANITARY INSPECTORS' EXAMINATION BOARD.—Two Medical Officers of Health as Examiners.

SHEFFIELD, UNIVERSITY OF.—Demonstrator in Physiology. Salary £150 per annum.

WARRINGTON INFIRMARY AND DISPENSARY.—Third House Surgeon, unmarried. Salary £80 per annum, with residence, board, and laundry.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Ochiltree, in the county of Ayr; at Leuchars, in the county of Fife; at Ballaghaderrin, in the county of Mayo; and at Athlone, in the county of Roscommon. A vacancy for a Medical Referee under the Workmen's Compensation Act, 1906, in regard to lead poisoning cases, for County Court Circuit No. 26 is also announced.

Births, Marriages, and Deaths.

BIRTHS.

CHAPLIN.—On Oct. 17th, at Angmering, Sussex, the wife of Clement W. Chaplin, M.D. Lond., of a son.

FORRESTER.—On Oct. 18th, at Bolton-street, Piccadilly, the wife of C. C. Forrester, M.B., Cairo, of a son.

LAWSON.—On Oct. 14th, at Harley-street, Cavendish-square, the wife of Arnold Lawson, F.R.C.S., of a daughter.

MADDEN.—On Oct. 15th inst., at 2, Pierremont Villas, Queen's-road, Broadstairs, the wife of Dr. F. C. Madden (Cairo), of a daughter.

MYERS-WARD.—On the 16th inst., at Kelvin House, Northwood, Middlesex, the wife of C. F. Myers-Ward, of a daughter.

DEATHS.

GLOVER.—On Oct. 14th, at Highbury-place, James Grey Glover, M.D., J.P., aged 76 years.

RIDER.—On the 18th inst., at 16, Garfield-terrace, Stoke, Devonport, Alonzo G. Rider, M.B. (London), M.R.C.S., L.R.C.P., aged 41 years, the elder son of Alonzo J. Rider, J.P.

TREVES.—On Oct. 14th, at Dalby-square, Margate, William Knight Treves, F.R.C.S. Eng., aged 65 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

During the week marked copies of the following newspapers have been received:—*Birmingham Daily Post, Springfield Daily Republican (U.S.A.), The Carlisle Patriot, Nottingham Guardian, Nottingham Express, Yorkshire Herald, Birmingham Post, Liverpool Post, Manchester Guardian, York Observer, Westminster Gazette, Leeds Mercury, Freeman's Journal (Dublin), Belfast News Letter, Lincoln Mercury, Taunton Mail, Liverpool Courier, &c.*

Notes, Short Comments, and Answers to Correspondents.

MEDICAL MEN AND RUDYARD KIPLING.

To the Editor of THE LANCET.

SIR,—Referring to the report of Mr. Rudyard Kipling's brilliant and stirring address a few days since to the students of the Middlesex Hospital, perhaps I may be allowed to relate a story as an instance of the heroism which doctors can display under trying circumstances.

I have had the pleasure of meeting and being treated more or less by 22 medical men whose names I could recount, and therefore have had a pretty large experience.

The story is this. One of a large family, I had a younger brother subject to frequent attacks of hæmorrhage from the nose, and in those days the only means of saving such a sufferer from death seemed to be by plugging both nostrils. Indeed, some celebrities called to see the patient, and though they were pleased to call it a "very interesting case" they could not advise any other remedy, though one or two had been tried but failed. I can remember vividly being called up at about 3 or 4 o'clock one dark winter's morning with snow on the ground "to fetch the doctor." When I arrived at his house he put his head out of window, promising to come round as quickly as possible. My little part was to hold one of the lights at the bedside, but noticing that I was about to collapse he peremptorily ordered me to put down the light and go, which I did, and promptly fell into a fainting fit at the foot of the stairs. Recovering myself and meeting the doctor leaving the house, I tried to apologise for my weak behaviour but was told by him that few novices would pass through such an ordeal without the same result. The doctor said he had performed the operation under difficulty and expected we had thought him a little tardy in arriving, but all the time at the operation he had had his clothes pressing upon an abscess, and he had come through the snow and sleet leaving a wife at home in an almost dying condition.

Of course I may be wrong, but I can hardly conceive of more heroic behaviour on a battlefield, where acts such as these might be related in the newspapers to the public; but my story is only known to myself and a small circle of friends. The patient and doctor have passed away, but the patience of the former and the bravery of the latter can never fade from my memory. I may add that an old friend and physician had asked this doctor to make his fees light, as we were not in those days in what are termed comfortable circumstances. The bill arrived, with a graceful note accompanying it, saying the fees could have been made larger, but if we thought the bill too much, he would be perfectly satisfied with anything less we might hand him. I need hardly say that with such a man it was quite unnecessary, as the bill was so ridiculously small, and we insisted upon his taking a cheque for double the amount.

Hoping my story may interest and act as a stimulant to many a student,

I am, Sir, yours faithfully,

Oct. 17th, 1908. AN EASTBOURNIAN.

AN EARLY CLINICAL RECORD OF MYOMA OF THE UTERUS.

To the Editor of THE LANCET.

SIR,—The well-known record in the Gospels of the woman having an "issue of blood" (St. Mark v. 25, St. Luke viii. 43) is proof of the fact that myoma of the uterus was not only known in mediæval times, but that even then it was regarded as a peculiarly hopeless malady so far as medical treatment was concerned. A far earlier record, I believe, exists in the book of Genesis where the well-known clinical signs of a fibroid—viz., sterility for a number of years and obstructed labour—are mentioned and where the occurrence of severe hæmorrhage is strongly inferred. The patient in the case cited is Rachel, one of the wives of Jacob. Married soon after Leah, probably within a week of her sister, it was not until to the latter six sons and a daughter had been born that at last Rachel's hopes were realised and a son was born to her. If we allow a period of at least 10 years for this we shall be well within the probable limit, and during this time her sterility was a constant source of trouble to Rachel (Gen. xxx. 1), and what more probable than that she had had many miscarriages, for we find in her last fatal confinement that her midwife encourages her by saying "Fear not; thou shalt have this son also" (chap. xxxv. 17).

After 20 years in the service of Laban (chap. xxxi. 38) Jacob determines to leave and hastily mounting his wives and children on camels he sets out in secret, Rachel carrying with her her father's household gods. Laban pursues after the fugitives and after seven days' journey overtakes them and demands his teraphim. He insists on searching the tents for his lost treasures and enters the tents seriatim until at last he comes to Rachel's. The fearfully rough ride on camel back, combined with fear and agitation, had in all probability produced serious hæmorrhage or possibly an abortion, for we find Rachel reclining on the saddle or litter on which she had ridden, and making the excuse that owing to the "custom of women" being upon her (chap. xxxi. 35) she cannot rise. It is inconceivable that such an excuse would have been given or accepted for an ordinary menstrual period, but if a serious hæmorrhage had occurred, of which there was ocular evidence not only on her clothing but also on the saddle on which she had been riding, then it becomes apparent why she was not disturbed, for her appearance must have been one to

excite pity owing to weakness and loss of blood, and hence she was suffered to remain undisturbed with the images concealed under the camel's furniture.

We now come to the tragic close of her story. Jacob is journeying from Bethel when Rachel, who has again gone to full term, is taken in hard labour (chap. xxxv. 17 and 18), a significant statement twice repeated which points to the fact that there was great difficulty in the process. What more probable than that the fibroid growth had attained such a size as to impede the progress of the child? For no mention is made of a malpresentation as in another place (Gen. xxxviii. 28 and 29). The midwife who attended her was probably a stranger, her own nurse having died some time previously (chap. xxxv. 8) but had no doubt learned her previous history of disappointed hopes and encourages her to think that she will have "this son also." Finally the child is delivered alive, but worn out by the "hard" labour and weakened by previous hæmorrhages and ill-health the mother dies shortly afterwards. Whether her death was due to exhaustion or hæmorrhage and occurred at once or whether from septicæmia in a few days owing to sloughing of the tumour we cannot say, but in all probability her death took place soon after the birth of her child, for with her dying breath (chap. xxxv. 18) she names him "Son of my sorrow."

I am, Sir, yours faithfully,

O. B. TRUMPER, M.B. Vict., F.R.C.S. Edin.

Newtown, N. Wales, Oct. 13th, 1908.

THE DANGERS OF A LATE "LIGHTING-UP TIME."

To the Editor of THE LANCET.

SIR,—With reference to your valuable annotation, "The Dangers of a Late 'Lighting-up Time,'" in THE LANCET of Oct. 17th, p. 1161, may I bring to your notice that there is a very good rule for lighting-up time in the Locomotives Act of 1898, section 15, subsection 3, viz.: "The lights shall be carried between the hours of one hour after sunset and one hour before sunrise during the six months beginning the first day of April in any year, and between sunset and sunrise during the six months beginning the first day of October in any year." It is strange that this excellent rule was not adopted in the Motor Car Act of 1903, nor by the London County Council in their by-law respecting lights on vehicles, and it is also to be regretted that none of the above make any provision for lamps being lighted in fogs as is the rule in several foreign countries.

I am, Sir, yours faithfully,

Oct. 19th, 1908. A. G. WYNEN, Colonel late Dorset Regiment.

A WARNING.

To the Editor of THE LANCET.

SIR,—There is a man going about stating that he is my nephew with a card B. E. Osler, The Dale, Toronto, and Christchurch, Oxford. Will you please ask doctors to be careful. He has already bled several of my friends.

I am, Sir, yours faithfully,

Oct. 14th, 1908. WM. OSLER.

A BOTTLE CATALOGUE.

WE have noticed certain good features in the descriptions of medicinal bottles comprised in a catalogue illustrating bottles of all descriptions and sizes which we have received from Messrs. Kilner Brothers, Limited. The poison bottles, of which the lower part is fluted so as to be recognised by touch alone, whilst the upper part is plain, so as to afford space for the label, are of excellent design, and another innovation which will be welcome to many is the dispensing bottle with a screw stopper instead of a cork. The advantages of these are obvious, but we are not sure that they would be suitable for dispensing viscous medicines, as the rubber rings might not be readily cleaned afterwards.

Thomas.—Our correspondent's question is rather too vaguely put to enable us to give a definite answer. Presumably sterilisation would occur were the towels left in for a sufficient time. As, however, it is probable that our correspondent means that the towels would only be left in the steriliser during the period of time for which the instruments are boiled—i.e., about 15 minutes—we do not think the sterilisation of the towels would occur, especially as probably they would be folded up.

Mr. T. Hanchard.—Upon examination of the article sent we hardly think that it presents the advantages which its inventor claims for it.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Oct. 22nd, 1908.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Oct. 16	30·02	E.	...	89	63	55	55	56	Overcast
,, 17	29·96	S.E.	0·46	78	62	56	57	57	Overcast
,, 18	30·07	E.	...	87	65	57	59	61	Fine
,, 19	30·01	S.E.	0·38	66	60	55	56	56	Overcast
,, 20	30·03	S.E.	...	66	54	50	49	51	Overcast
,, 21	30·06	E.	0·15	80	50	43	43	43	Raining
,, 22	30·46	E.	...	77	49	39	41	42	Cloudy

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

MONDAY.

ODONTOLOGICAL SECTION (Hon. Secretaries—J. Lewin Payne, H. W. Trewby, D. P. Gabell): at 8 P.M.

Paper:

Dr. William Wright: The Teeth of Early Man (illustrated by the epidiascope).

Casual Communication:

Mr. F. Mellersh: Notes on an Amalgamator—a Mechanical Device for Amalgamating Alloys.

TUESDAY.

MEDICAL SECTION (Hon. Secretaries—Herbert P. Hawkins, A. M. Gossage): at 6.30 P.M.

Paper:

Captain R. McCarrison, I.M.S.: Observations on Endemic Cretinism in the Chitral and Gilgit Valleys.

THURSDAY.

NEUROLOGICAL SECTION (Hon. Secretaries—Leonard G. Guthrie E. Farquhar Buzzard): at 8.30 P.M.

Dr. F. E. Batten: (1) Cerebellar Atrophy—Sequel to a Case shown in the Clinical Section, Oct. 11th, 1907; (2) Diffuse Sarcomatosis of the Nervous System.

Dr. S. A. K. Wilson: The Amyotrophy of Tabes Dorsalis.

Dr. Gordon Holmes and Dr. Foster Kennedy: (1) Syringomyelia with Syphilitic Pachymeningitis; (2) Syringomyelia with Intra-medullary Tumour without Clinical Symptoms. (With lantern demonstration.)

Dr. Gordon Holmes: Exhibition of Pathological Specimens.

N.B.—Fellows of the Society are entitled to attend and to speak at all Meetings.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., Dr. H. D. Rolleston: Some Points in the Diagnosis of Malignant Disease of the Liver.—Dr. W. Harris: Sciatica—its Diagnosis and Treatment.

BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY, 20, Hanover-square, W.

THURSDAY.—5.30 P.M., General Meeting. 6 P.M., Ordinary Meeting. Sir Dyce Duckworth: Short Address of Welcome to the French Visitors.—Dr. Solly: Municipal Management of Health Resorts. (Presidential Address.)

HARVEIAN SOCIETY OF LONDON, Stafford Rooms, Titchborne-street, Edgware-road, W.

THURSDAY.—8.30 P.M., Discussion on the Administration of Tuberculin (T.R.) in Tuberculous Disease other than Pulmonary Tuberculosis (opened by Dr. A. Latham).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

FRIDAY.—5 P.M., Prof. Keith: On Specimens illustrating Ectopia Vesicæ and Allied Conditions. (Museum Demonstration.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. G. Little: Clinique (Skin). 5.15 P.M., Lecture:—Dr. P. Stewart: The Prognosis and Treatment of Infantile Paralysis.

TUESDAY.—4 P.M., Dr. J. Taylor: Clinique (Medical) 5.15 P.M., Lecture:—Dr. J. Mackenzie: The X Disease.

WEDNESDAY.—4 P.M., Mr. H. B. Robinson: Clinique (Surgical). 5.15 P.M., Lecture: Dr. A. J. Whiting: Two Important Angio-neuroses.

THURSDAY.—4 P.M., Mr. Hutchinson: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. F. M. Sandwith: Malaria—its Prevention and Treatment (with lantern slides).

FRIDAY.—4 P.M., Mr. R. E. Bickerton: Clinique (Eye).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Mr. Etherington-Smith: Demonstration on Surgical Cases. 12 noon, Dr. Low: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Dr. Davis: Common Diseases of the Pharynx.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Low: Insects as Carriers of Disease, especially in reference to the Tropics.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. 12.15 P.M., Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Scott: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Dr. Beddard: Medicine.

THURSDAY.—10 A.M., Mr. Etherington-Smith: Demonstration on Surgical Case. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Mr. Edwards: Rectal Cases.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. Pardoe: The Treatment of Urethral Stricture.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Scott: Diseases of the Eyes. 2.30 P.M., Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. J. H. Evans). 2.30 P.M., Medical Out-patient (Dr. Whipham); Nose, Throat, and Ear (Mr. Carson); X Rays. 4.30 P.M., Medical In-patient Clinic (Dr. Whiting).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. Auld). 2.30 P.M., Surgical Operations (Mr. Carson). Clinics:—Surgical (Mr. Edmunds); Gynæcological (Dr. Giles). 4.30 P.M., Demonstration:—Dr. G. N. Meachen: Selected Skin Cases.

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. Whipham); Skin (Dr. Meachen); Eye (Mr. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. Giles). Clinics:—Medical Out-patient (Dr. Whiting); Surgical (Mr. Carson); X Rays. 3 P.M., Medical In-patient (Dr. Chappel). 4.30 P.M., Lecture:—Mr. H. W. Carson: Modern Methods of Treatment of Obstruction of the Large Intestine.

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. J. H. Evans). 2.30 P.M., Surgical Operations (Mr. Edmunds). Clinics:—Medical Out-patient (Dr. Auld); Eye (Mr. Brooks). 3 P.M., Medical In-patient Clinic (Dr. R. M. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Sir Dyce Duckworth: Medicine. 3.15 P.M., Mr. Turner: Surgery. 4 P.M., Mr. Lawrence: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. Carless: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 2.30 P.M., Special Lecture:—Dr. Rankin: Acromegaly, with Illustrative Cases.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 2.15 P.M., Special Lecture:—Dr. R. Bradford: Non-valvular Diseases of the Heart.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W.C.

THURSDAY.—6 P.M., Chesterfield Lecture:—The Treatment of Eczema in all its Forms.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—3.30 P.M., Dr. Tooth: Muscular Atrophy.

FRIDAY.—3.30 P.M., Sir V. Horsley: Surgery of the Nervous System

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (26th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.).

TUESDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Ophthalmic (2 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (28th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.).

THURSDAY (29th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.).

FRIDAY (30th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.).

SATURDAY (31st).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

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Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and generally do so collect, from the Proprietors the cost of such extra postage.

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